May 1934

RAILWAY TRACK and STRUCTURES

On the Right Track...

YOU can be sure that you're "on the right track" if you are using RAJO Headfree Joints. They are provided with a curved base bearing to minimize bolting strains in the rail and joint bar. It provides longer life for the joint bar and less maintenance for the rail ends by compensating for wear.

THE RAIL JOINT COMPANY, INC.

50 Church St., New York 7, N.Y.

ON TIME! CHECK IT!

Tight schedules require dependable track...

joint bolts stay tighter longer with RELIANCE

HY-CROME
spring washers

RAILROADS DEPEND on perfection in many details to keep the trains running on time. Not the least of these is keeping track joints tight. Reliance spring washers are designed to do this job and do it well. Control of development and research, manufacture and servicing by experienced personnel help produce and distribute a Hy-Crome product that has been privileged to serve the American Railroads for many years. Their confidence is appreciated.

To those roads we do not serve, we would like the opportunity to send one of our railway fastening engineers to give you more details. Write today.

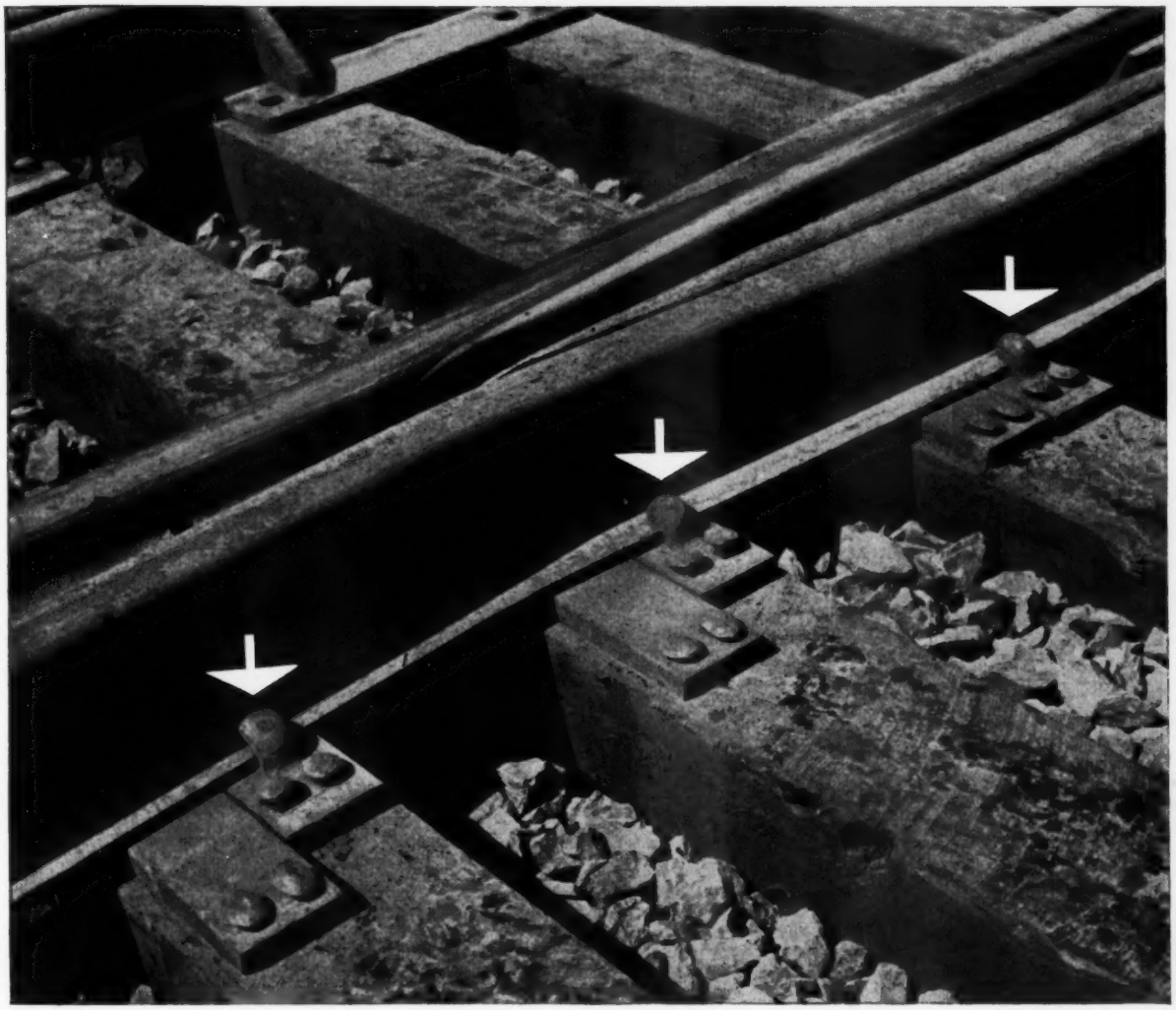
"Edgemark of Quality"

EATON

MANUFACTURING COMPANY, RELIANCE DIVISION

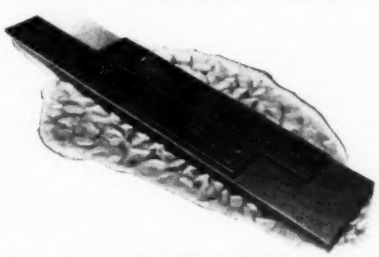
OFFICE AND PLANTS • MASSILLON, O

SALES OFFICES: NEW YORK • CLEVELAND • DETROIT • CHICAGO • S
SAN FRANCISCO • MONTREAL



How to keep a frog from loosening up

See these simple plates with the sturdy forged hooks? Their job is to keep a frog tight and rigid; to



keep it from jiggling, shifting position, or loosening up. And you will never find a more effective device for this purpose.

They are Bethlehem Twin Hook Frog Plates, and they are strong, low in cost, and so easy to install. As you will note, each plate has a hook at one end. The plates are always used in pairs. This means that any pair can be used at several *different* tie positions; no need for a large and confusing variety of lengths.

Because the hooks are big, they can take the most severe lateral thrust. They also hold down the frog base so that any lifting effect is minimized.

Install them just as shown in the pictures—two to a tie. Fasten them down with ordinary spikes. Then you'll have a frog that doesn't chatter, loosen, or work itself out of alignment.

Plates are stocked in several lengths and can always be furnished with either high or low hooks. They are a low-cost item, lessen maintenance expense, and represent a big investment in safety. Write our nearest sales office for more details or Folder 390.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM TWIN HOOK FROG PLATES

Published monthly by Simmons-Boardman Publishing Corporation, 79 W. Monroe St., Chicago 3, Ill. Subscription price: to railroad employees only in the United States and Possessions, and Canada, one year $1.50; $2.00 for two years. Single copies 50 cents. Entered as second-class matter January 20, 1933, at the post office at Chicago, Ill., under the act of March 3, 1879, with additional entry at Bristol, Conn. Volume 50, No. 5.

Compression ANCHORS

AID

Track Mechanization

Let's Get Down to "Brass Tacks"

This is another in a series of factual, down-to-earth advertisements on rail anchors. Some of these are little known facts; others will bear repeating. They all add up to this; that year in and year out—COMPRESSION ANCHORS are a *better* buy!

COMPRESSION Anchors help pave the way for the most efficient utilization of M/W work equipment. These anchors hold the tie spacing making it unnecessary to respace the ties for the tamping machines. Moreover, COMPRESSION Anchors stay put through tamping operations —mechanical tampers can't hit them. And in tie-renewal work, you don't have to remove either anchors or tie plates. All of which are significant reasons why COMPRESSION Anchors are important aids in track mechanization.

THE RAILS COMPANY

General Office
178 GOFFE STREET, NEW HAVEN 11, CONN.

ST. LOUIS, MO. HOBOKEN, N. J. CHICAGO, ILL.

HELPING TAKE THE BENDS OUT OF THE MISSOURI PACIFIC!

Northwests make money on jobs like this! Here is Geo. Bennett Const. Co. of Kansas City, scooping up shale and limestone for new grade that will eliminate three extreme curves on the old line. The Northwest is loading to 14 yd. trucks and doing it fast. Note the heap load in the dipper! Look at the size of some of the rock! Here is where the Northwest Dual Independent Crowd counts. It's a clean cut through the bank—no stutter, no restarts, no dipper juggling. It's a *real* Rock Shovel and when you have a real Rock Shovel you never have to worry about output in *any kind of digging.*

If you are figuring on new equipment let us send you a catalog on the size machine you need. There are many special Northwest advantages you should know about.

NORTHWEST ENGINEERING COMPANY
1513 Field Building, 135 South LaSalle Street, Chicago 3, Illinois

There are lots of things a Northwest Truck Crane can do to cut railroad maintenance costs. It is the ideal answer to the many scattered handling and excavating jobs that pile up from day to day. And, Northwest Truck Cranes bring you a combination of features in both crane and carrier that set them apart from the ordinary equipment. Don't buy a Truck Crane without getting full details.

NORTHWEST

THE ALL PURPOSE RAILROAD MACHINE
SHOVEL • CRANE • DRAGLINE • PULLSHOVEL

DOES THINGS NO TRACK-TYPE RIG CAN DO

A TYPE FOR EVERY REQUIREMENT

3 choices

FOR YOUR 125 C.F.M. COMPRESSOR NEEDS

SCHRAMM
Pneumapower

125 skidded unit can be placed in any position on truck, an advantage not possible with a power take-off assembly.

SCHRAMM
Pneumatractor

equipped with Back Hoe and Front End Loader, recommended for operating a complete assortment of construction tools.

SCHRAMM
UniStage

125 4-wheel trailer type operating 55# drill for drilling holes in the bottom of cut for dynamite blasting.

the **Pneumapower** engine driven compressor is a compact package with a decided weight advantage. Skidded, this outfit can be placed in any position on a truck, leaving plenty of space for equipment and maintenance crews. Also available for two wheel mounting. *A Schramm exclusive!*

the **Pneumatractor** provides a complete mobile supply of air, 125 c.f.m., for operating a wide variety of construction tools with the additional capacity to PUSH . . . PULL . . . and POWER a varied assortment of auxiliary units. *A Schramm Exclusive!*

the **UniStage** with the Pneumapower and Pneumatractor represent simplified compressor design that eliminates two-staging and intercoolers, has fewer parts, two gaskets under pressure instead of thirty. Pneumastat control is a feature that provides fuel savings up to 50%. *A Schramm exclusive!*

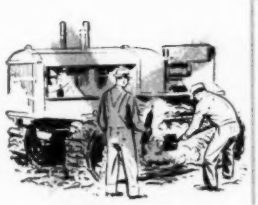
SCHRAMM, INC.

The Compressor People WEST CHESTER, PA.

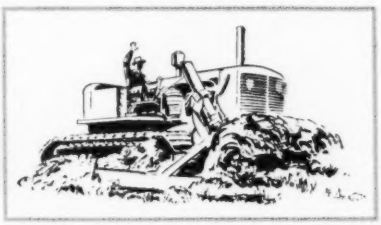
Advance design features make Allis-Chalmers Tractors performance leaders on off-track work

It takes truly modern equipment to keep pace with today's stepped-up demands for off-track construction and maintenance — and do it at reasonable cost. The line of Allis-Chalmers crawler tractors has been designed and built completely new since the war, with the kind of advanced engineering that delivers big-capacity performance at a minimum of maintenance expense.

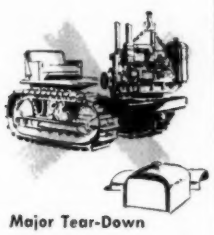
This forward progress is a continuing program. Additional improvements are constantly being incorporated into the HD-5, HD-9, HD-15 and HD-20 tractors. If you are in the market or just interested, see your Allis-Chalmers dealer for all the inside facts that have proved so popular with owners as well as operators and mechanics.



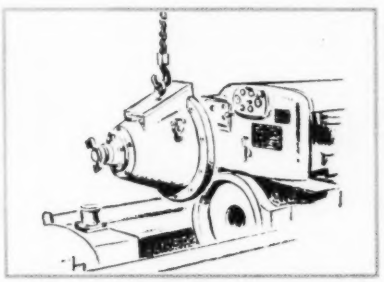
Daily Lubrication



1000-hour Lubrication. Operate six months on a 40-hour week basis with just one lubrication of truck wheels, front idlers and support rollers. Positive seals protect from dust, loose sand, soft ground, mud or water. You gain working time, save labor and lubricant costs, eliminate costly damage from greasing neglect.

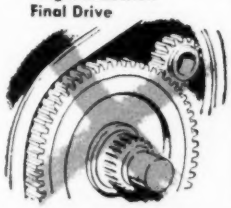


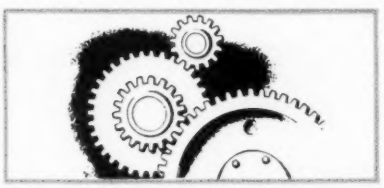
Major Tear-Down



Unit Servicing. No need to remove transmission or engine, radiator, grille, etc., when servicing or removing an Allis-Chalmers master clutch. The unit assembly principle also applies to final drive gear, transmission, steering clutches, engine and truck frame. Save hours of costly service and down time.

Single Reduction Final Drive

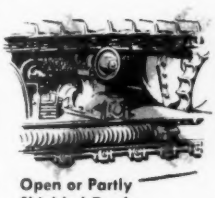




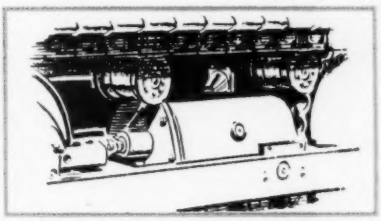
Double Reduction Final Drive. With smaller gears and shorter shafts, double reduction final drives provide better bearing and gear alignment. The "live" axle permits smaller, more serviceable seals. Equally important, double reduction drive provides for smooth, clean bottom construction and the extra ground clearance so necessary on rough terrain.

Ordinary Steering Clutches

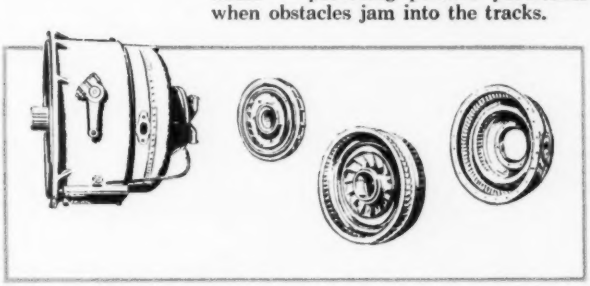
Hydraulic Steering and Self-Energizing Brakes. The HD-15 and HD-20 have hydraulic booster steering; operator exerts only 3 to 5 lb. pressure on controls, so he gets small tractor maneuverability from these 27,850 and 41,000 crawlers. Self-energizing brakes need less pedal pressure, take hold with a firm, uniform grip.



Open or Partly Shielded Track Release Mechanism



Oil Enclosed Track Release Mechanism. Operating in oil and *sealed* against dirt and moisture, Allis-Chalmers track release mechanism seals out mud, ice and debris. Because it's completely sealed, release mechanism is in working condition at all times — providing positive protection when obstacles jam into the tracks.

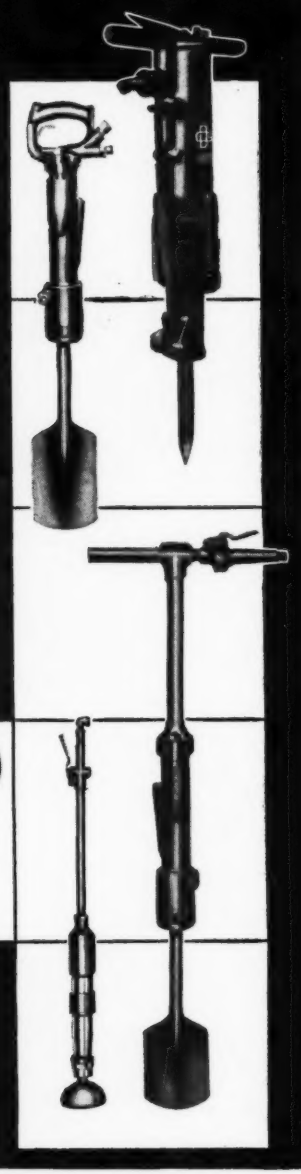


Hydraulic Torque Converter Drive.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

ORIGINATOR OF THE TORQUE CONVERTER TRACTOR

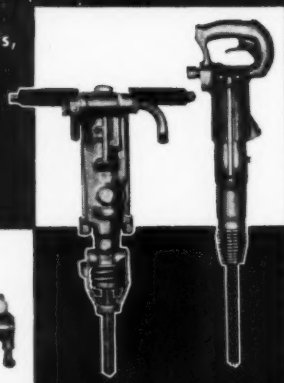
3 reasons **why** it pays to standardize on **GARDNER-DENVER air tools**



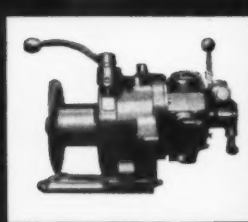
1 **they fit the job**
Field-proved for years on track and bridge work, plant maintenance and construction projects.

2 **they suit the men**
Well proportioned and correctly balanced—enable your men to accomplish more work, and with less fatigue.

3 **they stay out of the shop**
Precision design, tested materials, easily renewable wearing parts keep Gardner-Denver air tools on the job.

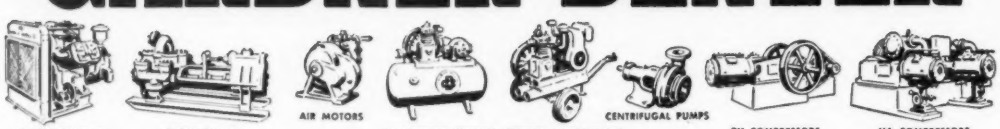


Write for descriptive bulletins.



SINCE 1859

GARDNER-DENVER



WB COMPRESSORS · GROUT PUMPS · AIR MOTORS · COMPRESSOR OUTFITS · TRAILER COMPRESSORS · CENTRIFUGAL PUMPS · RX COMPRESSORS · HA COMPRESSORS

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS
FOR CONSTRUCTION, MINING, PETROLEUM AND GENERAL INDUSTRY

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada) Ltd., 14 Curity Avenue, Toronto 16, Ontario

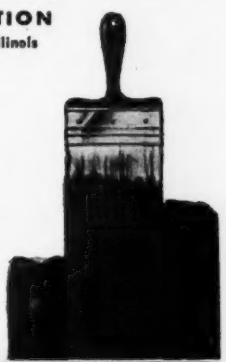
RUST-OLEUM lasts longer ...applied directly over rusted surfaces!

STOP RUST! with RUST-OLEUM

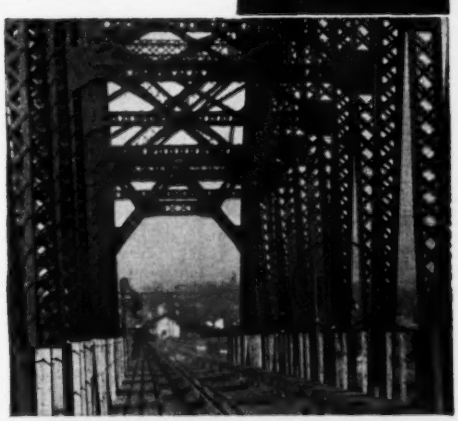
The Practical, Sensible Answer To Your Rust Problems!

Here's what RUST-OLEUM can do for you: (1) Cut your maintenance costs by saving you time, labor and money . . . because RUST-OLEUM may be *applied directly over rusted surfaces* by brush, dip or spray after wirebrushing and scraping with sharp scrapers to remove rust scale and loose rust! Costly sandblasting and chemical pre-cleaning are not usually required. (2) RUST-OLEUM *lasts longer* applied over surfaces already rusted. (3) RUST-OLEUM'S tough, elastic, rust-resisting film protects signal equipment, rolling stock, towers, bridges, metal buildings and all rustable metal surfaces. Get the complete story from a RUST-OLEUM Railroad Rust Preventive Specialist! See why major railroads throughout the nation rely on RUST-OLEUM.

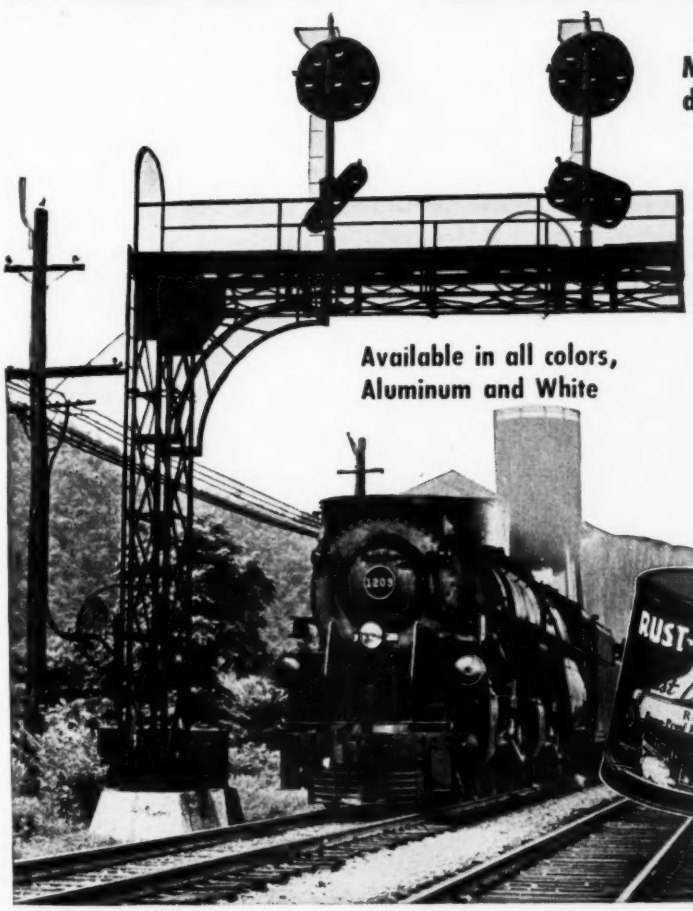
RUST-OLEUM CORPORATION
2549 Oakton Street • Evanston, Illinois



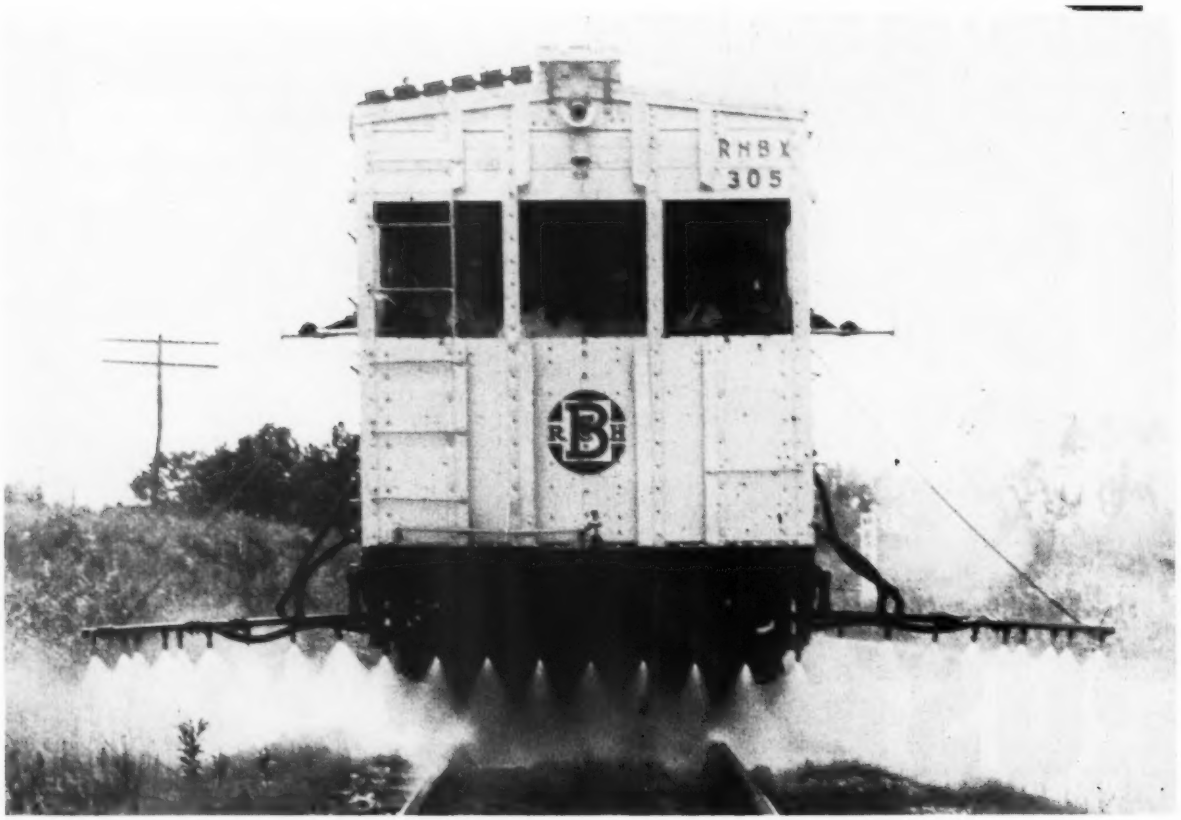
May be applied directly over rust



Available in all colors, Aluminum and White



Write for your FREE COPY of the RUST-OLEUM Catalog, TODAY!



You Draw On 30 Years of Progress . . .

ANNIVERSARY 30TH 1924-1954 R.H. BOGLE COMPANY

There is no substitute for experience—and this is particularly true of a weed and brush killing service. Three decades of steady growth contribute heavily to our service to the railroads.

A Bogle program is soundly conceived because it has a solid background of "on-track" tests which continue year after year. We have a wide selection of chemicals, adequate and modern spraying facilities and highly capable operators. May we serve you?

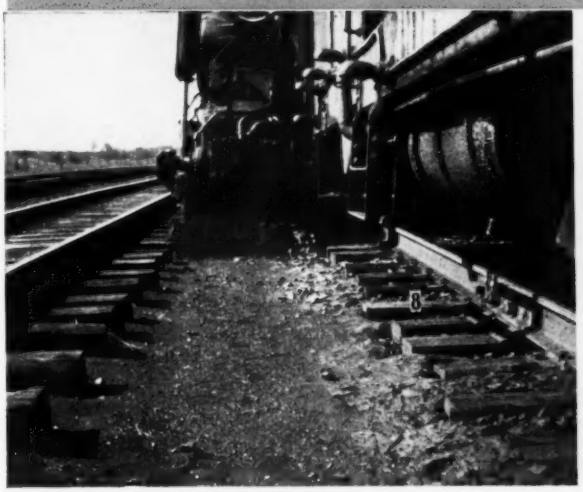
The R. H. BOGLE Company

ALEXANDRIA, VA.

Memphis, Tenn.

COMPLETE WEED and BRUSH KILLING SERVICE

1931 23 CONSECUTIVE YEARS 1954
MODERN BALLAST CONDITIONING



BEFORE *"R.B.C.C." Service*

AFTER *"R.B.C.C." Service*

"R. B. C. C." ballast cleaning service has earned its outstanding performance record from 23 years of successful operation. Our 3 and 5 unit trains are entirely self contained on our own standard railroad equipment—No railroad cars are used or tied up.

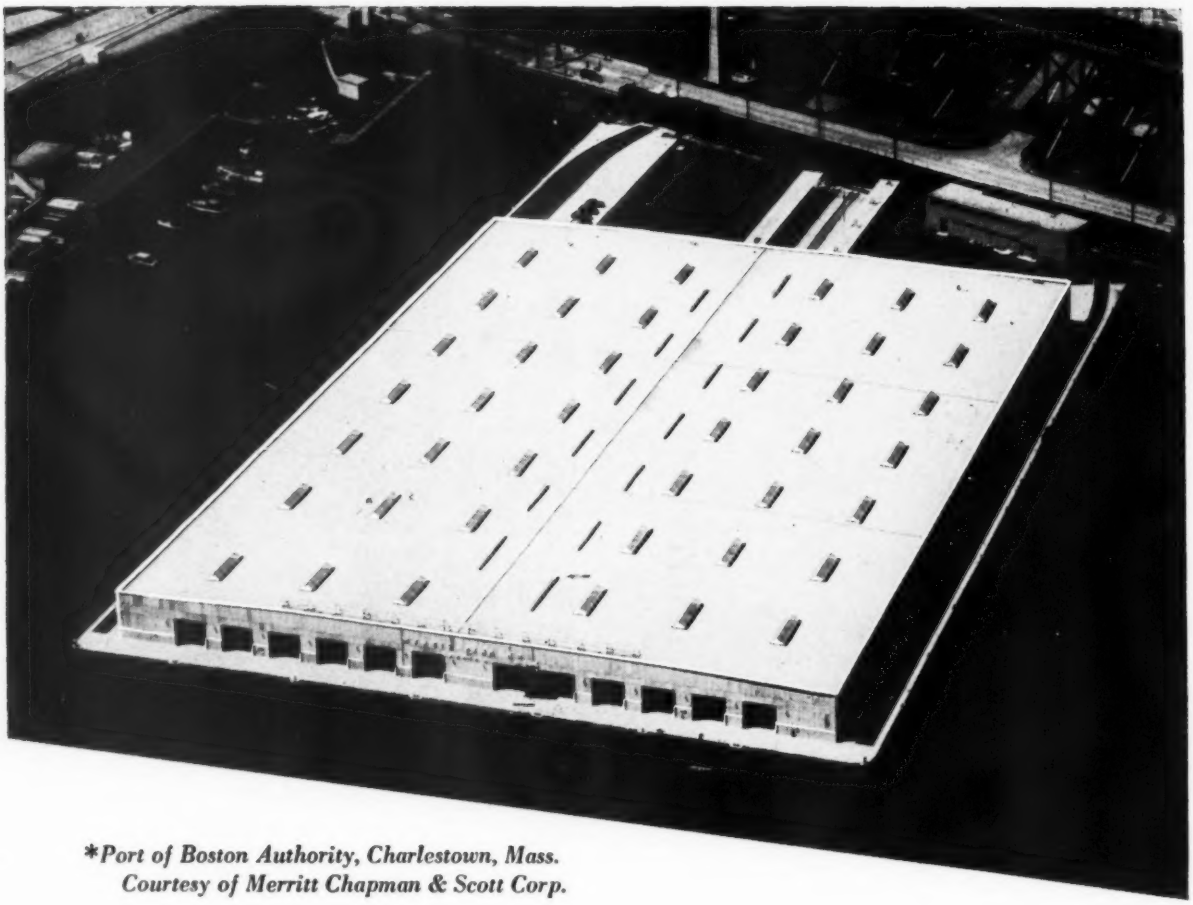
"R.B.C.C." 5 unit equipment does a thorough ballast conditioning job, cleaning two center ditches or two shoulders or one of each at one trip.

"R.B.C.C." 3 unit equipment, self propelled, does a thorough ballast conditioning job, cleaning one shoulder at one pass on one side only.

"R.B.C.C." ballast cleaning or excavating service, complete with our own personnel and equipment, is handled on contract basis.

RAND TOWER
MINNEAPOLIS, MINN.

METROPOLITAN BANK BLDG.
WASHINGTON, D. C.



**Port of Boston Authority, Charlestown, Mass.*
Courtesy of Merritt Chapman & Scott Corp.

DEPENDING ON REPUBLIC!

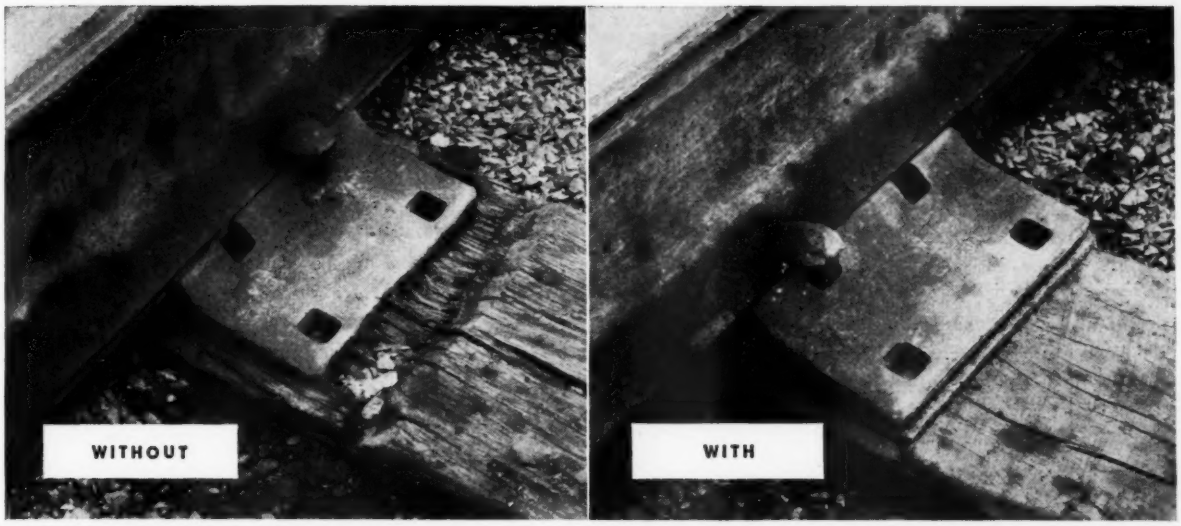
The all-important structural piles of this pier are southern yellow pine pressure-creosoted by Republic Creosoting Company.

In either fresh or salt water, acid or alkaline soil, pressure-creosoted wood . . . piles, railroad ties, cross arms, telephone poles, anchor logs, wood blocks, or other Republic products . . . has stood the test of time.

For dependable, long life service, obtain Republic Creosoted wood products.

REPUBLIC CREOSOTING COMPANY
MERCHANTS BANK BUILDING, INDIANAPOLIS 4, INDIANA

Republic
CREOSOTED PRODUCTS



1 **Lengthen crosstie life**—By cushioning the tremendous shock of impact, eliminating tie abrasion and cutting action, the Burkart Tie Pad is successfully proving to be the most effective, most economical prolonger of crosstie life on the market today. Combining the toughest available structural fibre and a tough, abrasion- and shear-resistant high density binder, fused under great pressure, into a dense, rugged mat, the Burkart Tie Pad permanently protects the tie against destruction under the tie plate.

Strong and resilient, the Burkart Tie Pad constantly maintains full bearing strength and density, does not become brittle in severest cold, does not flow in extreme heat, seals against grit, resists moisture and preserves the vital tie area from fungus, brine, weed sprays, oil, vermin, etc., commonly found along the right-of-way.

Why M/W Engineers are choosing Burkart Tie Pads

2 **Forestall Secondary Track Problems**—Rail end batter, spike loosening, regauging and reballasting are materially reduced by the Burkart Tie Pad. Its grasping action prevents shifting of the pad, and spikes hold. Joint bars remain tight. Its shock-absorbing resiliency protects against destructive movement, "rail wave" and drifting of ballast.

3 **Reduce Maintenance and Replacement Cost**—Labor costs money—when you invest in Burkart Tie Pads, you save on labor and materials involved in *replacement* of ties; *resetting* of spikes; *tightening* of joint bars; tie *tamping* and *regauging*. These are substantial, traceable dividends that will show up in black ink on *your* railroad's Financial Statement.

SEE FOR YOURSELF how rugged Burkart Tie Pads can save you money. Test them at trouble spots on your railroad—on bridge ties and at switches and curves, even on your straightaways. Send for sample, prices or additional information. If you wish, an experienced Burkart technical representative will gladly consult with you.

F. BURKART MFG. CO., Railroad Tie Pad Division
Division of Textron, Inc.
4900 North 2nd Street • St. Louis 7, Mo.

THE BURKART TIE PAD
with or without adhesive

Super Mole cleans 800-2400 fph with TIMKEN® bearings handling worm drive radial and thrust loads

RAILWAY MAINTENANCE CORPORATION mounts the two digger head worm drives of its McWilliams Super Mole on Timken bearings to assure long life, trouble-free operations.

TO keep its McWilliams Super Mole cleaning 800-2400 fph without trouble, the Railway Maintenance Corporation mounts the two digger head worm drives on Timken® tapered roller bearings.

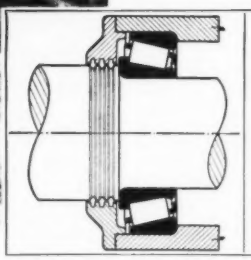
Timken bearings handle this tough job with ease. They take the thrust load imposed by the worm—plus the radial load—without special thrust bearings. That's because the tapered construction of Timken bearings enables them to take *any* combination of radial and thrust loads.

Dirt's a special bearing problem on this Super Mole. When the digging heads dig, they stir up clouds of it. But Timken bearings keep housings and shafts concentric making closures more effective. Dirt stays out—lubricant in.

Wear is negligible because the true rolling motion and incredibly smooth surface finish of Timken bearings practically eliminate friction. And because we're the only bearing manufacturer in the U.S.A. that makes our own steel, we're the only one that can control quality every step of the way.

To get all these advantages in the equipment you build or buy, always specify Timken bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



LUBRICANT STAYS IN —DIRT KEPT OUT

Because Timken bearings hold shafts concentric with housings, closures are made more effective. Lubricant is retained, dirt and moisture kept out.

The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis Timken steels.

TIMKEN

TRADE MARK REG. U.S. PAT. OFF.

TAPERED ROLLER BEARINGS

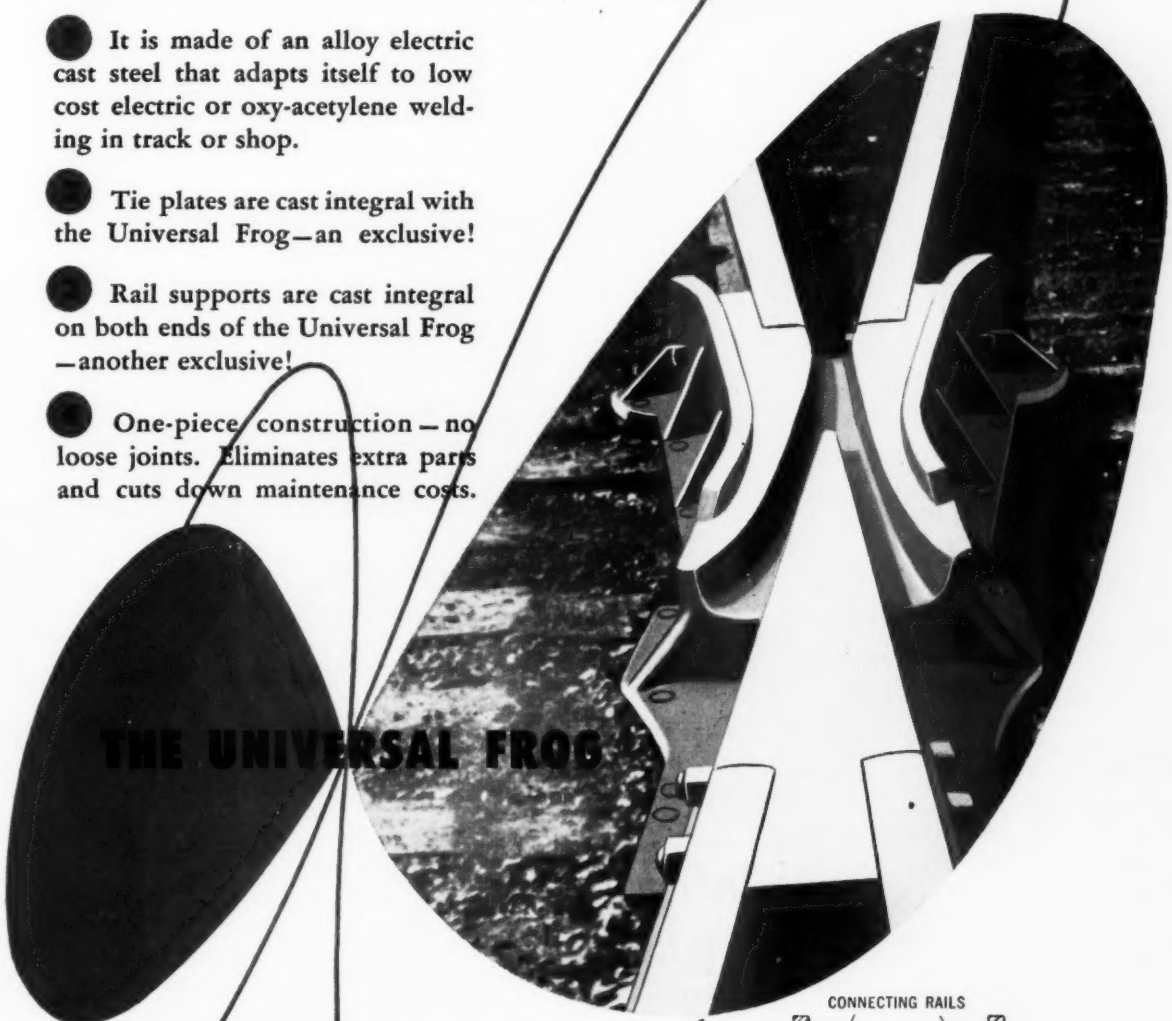
NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭

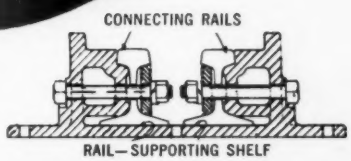
BEARING TAKES RADIAL ▯ AND THRUST ◁▯▷ LOADS OR ANY COMBINATION ✳

4 JUMPS AHEAD OF COMPETITION...

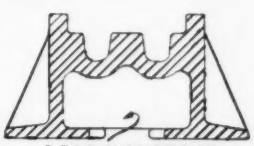
Yes, the Universal Frog for yard service is built better 4 ways . . .

- It is made of an alloy electric cast steel that adapts itself to low cost electric or oxy-acetylene welding in track or shop.
- Tie plates are cast integral with the Universal Frog—an exclusive!
- Rail supports are cast integral on both ends of the Universal Frog —another exclusive!
- One-piece construction — no loose joints. Eliminates extra parts and cuts down maintenance costs.





HERE'S PROOF: Compare the cross sections of the Universal Frog with conventional types. Note the improved type rail joints, the patented supporting shelf, integral tie plates and rib construction.



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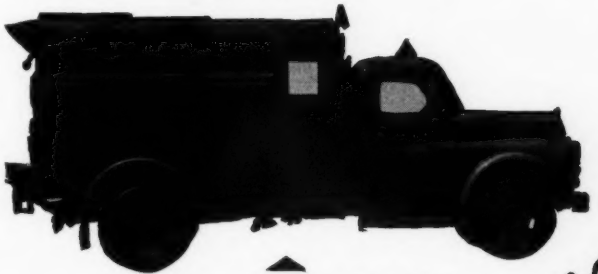
Series 1300 Heavy-Duty Hydraulic Tower—Stationary, rotary or transverse platforms can be mounted with many body types. Choice of 17', 23'6" and 30' extended platform heights. All Platforms lower to approximately 10'3". 35-foot towers available with new self-leveling device—fully power operated. (Not shown)



Series C and CC, Line Construction Bodies—Available with or without crew compartment, for all chassis with CA dimensions from 60" to 108". Model CLC-138 shown above has a built-in crew compartment. Standard or low floor design.

Series 2100, Full Hydraulic Aerial Ladders—Hydraulic pressure is powered by individual gasoline engine integral with ladder or by truck-mounted power take-off. 360° rotation by hydraulic motor driven worm wheel and gear. Fly section operated by hydraulic winch. Large hydraulic cylinder, permitting low working pressure, elevates ladder to infinite number of positions through 75° working range. Choice of 27', 31' or 35' platform heights.

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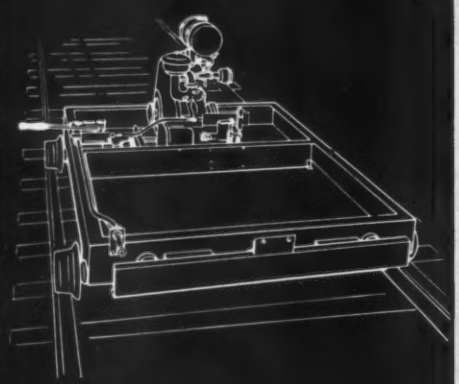


THE *Matisa* AUTOMATIC JACK CARRIER

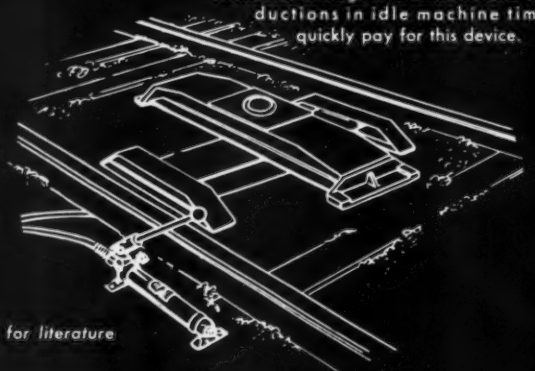
This amazing self-powered car furnishes *unattended* shuttle service between a Matisa Tamper and the track raising gang. It *automatically loads itself*, reverses direction and even stops by itself!

THE NEW MODEL *Matisa* TIE RENEWAL MACHINE

Takes old ties out, puts new ones in at half cost — *in a fraction of the time* — of old style methods. Leaves no rough track behind. Knurled steel rollers move ties in either direction with the flick of a lever, spotting them precisely where wanted.

THE *Matisa* TAMPER TURNTABLE

Turn your *Matisa* Tamper around in 15 minutes with this portable, hydraulic turntable! Savings in man-hours and reductions in idle machine time quickly pay for this device.



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NEWS NOTES...

...a resumé of current events throughout the railroad world

MAY, 1954

The National Mediation Board has been asked to arbitrate the dispute between the Switchmen's Union of North America and the carriers involving the union's demands for a 40-cent-an-hour wage increase, changes in overtime and vacation pay rules, sick leave, etc. Negotiations between union and carrier representatives broke down in mid-January when the union rejected a carrier offer of a five-cent pay hike, plus escalator increases now in effect, and three vacation weeks for men having 15 or more years of service.

•

Final figures on 1953 operating averages, compiled by the Association of American Railroads, show that the railroads last year operated at a new high record of efficiency. "Class I railroads in 1953," the AAR says, "moved an average of 23,443 net ton-miles of freight per train-hour. This was more than three times as great as the average for 1920 and approximately one-third above that for the year 1943. The average speed of freight trains in 1953 also was greater than in any preceding year."

•

The mail-pay increase approved by the Interstate Commerce Commission is expected to offset the out-of-pocket deficit from mail operations, and contribute more than $20 million per year toward other expenses associated with passenger-train services.

•

The ICC has denied a petition of the New York Central for an investigation into the activities of Robert R. Young and stock transactions of the Chesapeake & Ohio and Alleghany Corporation. However, the Central has charged in a new petition to the ICC that the Young-Kirby-Alleghany group is attempting to bypass the commission and acquire control of the road illegally.

•

The Nickel Plate has placed in effect a one-third reduction in roundtrip coach fares between Ohio points on its system and as far west as Fort Wayne, Ind. The reduced fares will result in savings of as much as $4.85 on roundtrip travel between Cleveland and Fort Wayne.

•

All-dome, or "upper level," coaches for service between Los Angeles and Chicago on the Santa Fe's all-coach "El Capitan" may be in service in the near future. The five train sets in this service were equipped with all-dome lounge cars on March 1 and new conventional-type long-distance coaches. There are indications that the all-dome coach idea may reach rapid fruition.

•

The Chicago & North Western is planning to raise its Chicago passenger terminal train shed approximately one foot. The additional clearance will be needed to accommodate the double-deck suburban passenger cars presently on order. The roof of the trainshed covers an area of about seven acres. It is expected that the work will be completed before the end of the year.

NEWS NOTES (continued)

Higher airline fares may be in the offing. United Air Lines stockholders have been told: "There is a question as to how long . . . air transportation can be offered to the public without some upward adjustment of rates."

•

The Lehigh Valley has obtained an indefinite postponement of the AB brake order on camp and work cars. The ICC has permitted the road to operate such cars, not equipped with AB equipment, on the condition that they be moved in non-revenue trains of not exceeding 20 cars and at speeds not exceeding 30 mph.

•

The presidential emergency board set up to hear arguments from both sides in the controversy over the demands of non-operating unions for increased vacations and other fringe benefits is to make its report to the White House about May 15. At the close of the lengthy hearings in Chicago, carrier and union representatives agreed the board should be allowed additional time to consider the large volume of testimony and the complex issues involved.

•

Many "non-sked" airlines, which compete for military passenger business, have not been paying bills for gas and oil supplied by the Air Force, according to a Senate subcommittee. Delinquent accounts are currently estimated in excess of $1,000,000—yet credit continues to be extended. One "non-sked" obtained credit even after it had gone into bankruptcy.

•

The Lackawanna recently held a meeting attended by supervisors and general and local chairmen of various labor organizations, at which President P. M. Shoemaker discussed the company's annual report for the preceding year and imparted further information about the company's affairs. This is the second year in succession that the Lackawanna has held this type of informative gathering.

•

The New York Central engineers are completing plans for the construction of "piggyback" terminals in Chicago, Cleveland, New York, Boston and Detroit. The terminals facilities are designed to accommodate 75-ft. flat cars carrying two trailers each, back to back. Trailer-on-flat car service is expected to begin on the Central in a few months.

•

The Rock Island has organized its approximately 20,000 employees into "cooperative traffic committees" which are making ". . . a collective effort to meet the challenge presented by the current economic trend, and to campaign for a greater share of the nation's traffic."

•

Time magazine recently expressed the opinion that the Interstate Commerce Commission, hamstrung by its own bureaucratic tradition, governed by an outmoded law and staffed by overage personnel, is not up to the job of regulating the country's railroads. Of all the slow-moving, detail-bound agencies in Washington's bureaucracy, Time added, the ICC is probably the champion, having cost railroads over $500 million dollars since 1945 because of delays in settling rate cases.

SIX MILES south of Idaho Falls, Idaho, Morrison-Knudsen had a big job for the Union Pacific. Rails had to be raised seven inches on new ballast, shoulders and banks widened and drainage constructed.

Every piece of equipment on this particular job was Caterpillar. This was the lineup: two D8s and a D6 (all equipped with Caterpillar Bulldozers), a No. 12 Motor Grader, two DW20s with matching scrapers and a D7 for push loading.

There are hard-headed business reasons why *Cat** machines compose "a major portion of Morrison-Knudsen's multi-million-dollar fleet of construction equipment."

Look, for instance, at the work produced by the big, dependable No. 12 Motor Grader. Besides being essential on new construction, it can be used for keeping right of way clean, and reshaping slopes and drainage ditches. When winter comes the No. 12 becomes a valuable snow-removal unit.

In addition, this 100-horsepower versatile machine is kind to your operators. Constant-mesh transmissions enable them to shift easily. No large gear housings interfere with their visibility. Anti-coast brakes prevent creeping of adjustments under load and vibrations. In other words, the blade stays where the operator puts it.

Your Caterpillar Dealer will be happy to show you why the No. 12 will do more work, better, day after day. Have him demonstrate on *your* job. Just name the date.

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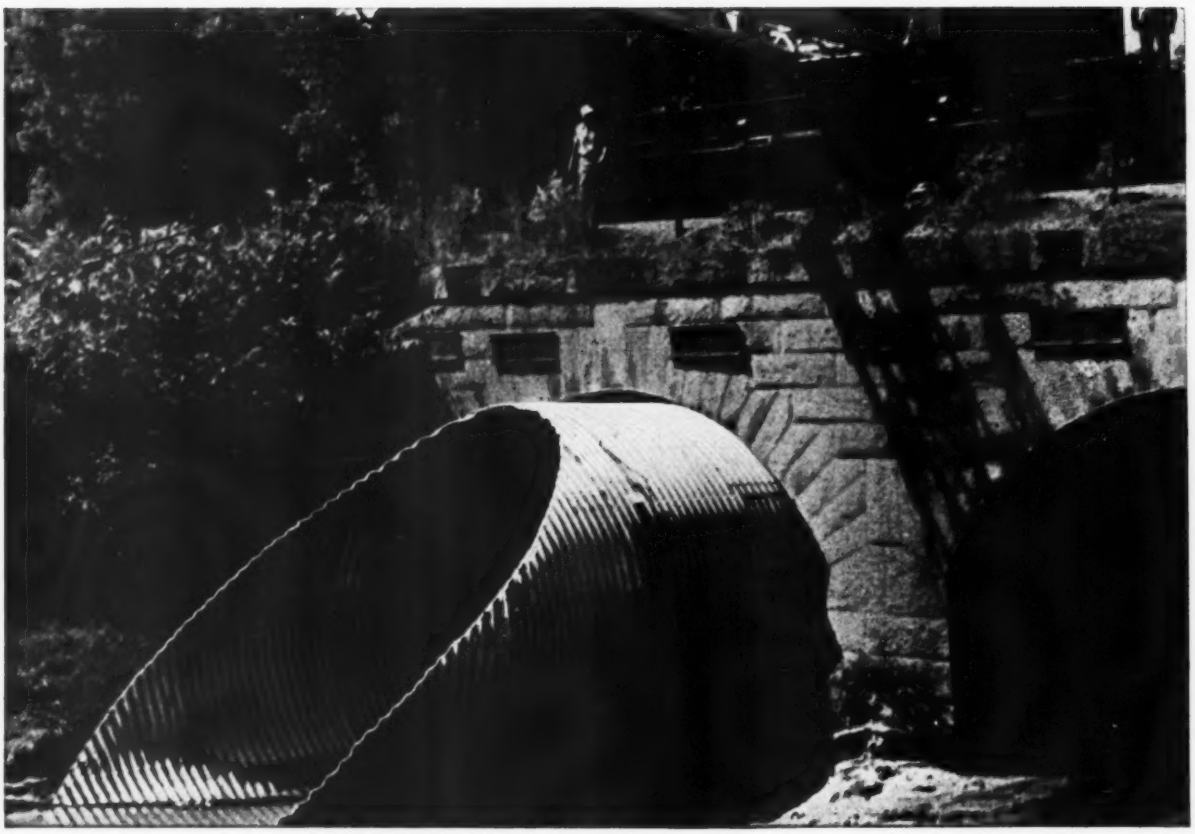


How to Get Extra Service from Failing Drainage Structures

Here's an easy, low-cost way to extend the life of failing arches, culverts and similar undertrack openings. Lining them with Armco Corrugated Metal Structures will restore safe strength at a fraction of the cost of complete replacement. Labor and material costs are much less, and you can do the job without disturbing the roadbed or track.

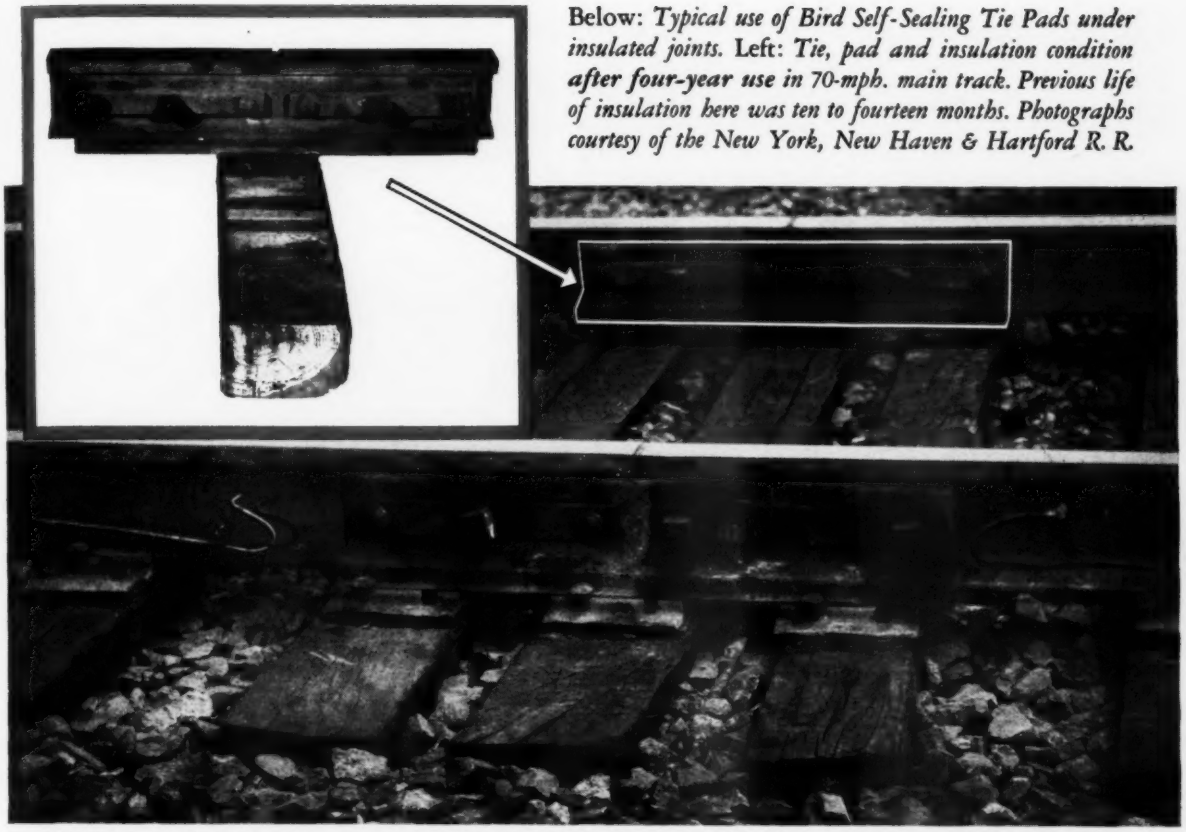
Simply select the Armco Structure that meets your needs, install it, and fill the void between the new and the old with grout. You'll get years of trouble-free service. A wide range of sizes and shapes assures a tight fit for almost any failing structure with little reduction in waterway area.

The extra expense of replacing failing head and wing walls can also be eliminated. By extending the Armco Structure beyond the ends of the old opening, you establish a natural slope that needs no retaining wall.

Armco Structures provide an easy way to get extra width at the track level, too. Attached to the ends of the existing structure they permit any additional fill you need. Write for complete information. Armco Drainage & Metal Products, Inc., 2204 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

ARMCO DRAINAGE STRUCTURES

ARMCO



Below: *Typical use of Bird Self-Sealing Tie Pads under insulated joints.* Left: *Tie, pad and insulation condition after four-year use in 70-mph. main track. Previous life of insulation here was ten to fourteen months. Photographs courtesy of the New York, New Haven & Hartford R. R.*

Slash your joint insulation costs 75% with BIRD Self-Sealing TIE PADS

BIRD SELF-SEALING TIE PADS maintain proper support for insulated joints by eliminating mechanical wear and plate penetration. These pads form a waterproof, dustproof seal on the tie that protects the vulnerable area under the tie plates and around the spikes.

YOU GET BIG RESULTS—HERE'S PROOF! Study the results in the insulated joints pictured here after four years of heavy wear in 70-mph. main track.

- The insulation is intact and shows no sign of distress. Since previous life of insulation in this joint was ten to fourteen months, insulation costs were cut more than 75%.
- In addition, the BIRD pads kept the supporting ties free of mechanical wear.
- Also, the vulnerable underplate and spike hole areas are still sealed off from all moisture and abrasion.
- Previous surfacing of this joint was necessary three to four times per year In this installation with Bird pads, no surfacing was required for the entire four-year period, thus saving *all* surfacing costs on this joint during that time. For best results, pad the shoulder as well as the joint ties.
- The BIRD pads themselves are still in excellent condition showing no wear. The beading around the edges of the tie pads shows proper pad performance.

BIRD PROVEN BEST! The only self-sealing tie proven by years of in-track experience.

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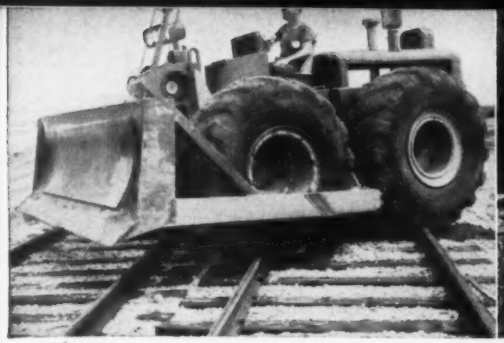

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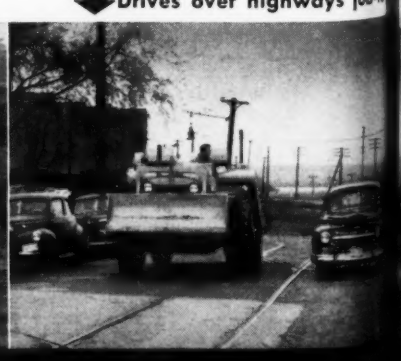
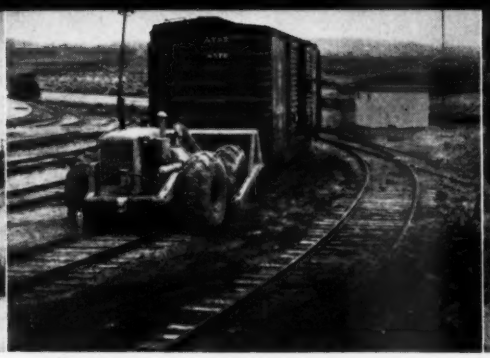


Or via highway job-to-job

Grades for drainage work



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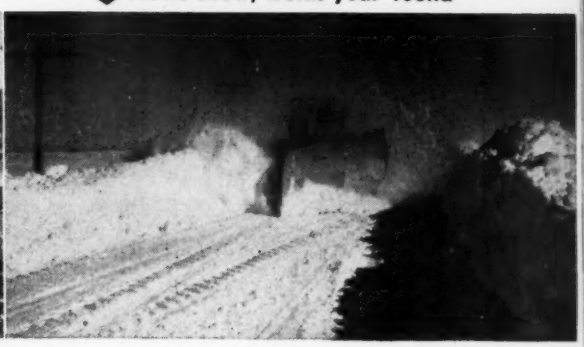

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Study the engineering and construction details of this equipment and see why track maintenance costs can be reduced so much.

Look at the performance of the Pullman-Standard Power Ballaster, Power Cribber or Power Cleaner. Compare it with any other available equipment and see why, mile after mile and year after year, these Pullman-Standard built units can assure better, faster, lower cost track maintenance.

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and Winch Car Team

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Power Cribber

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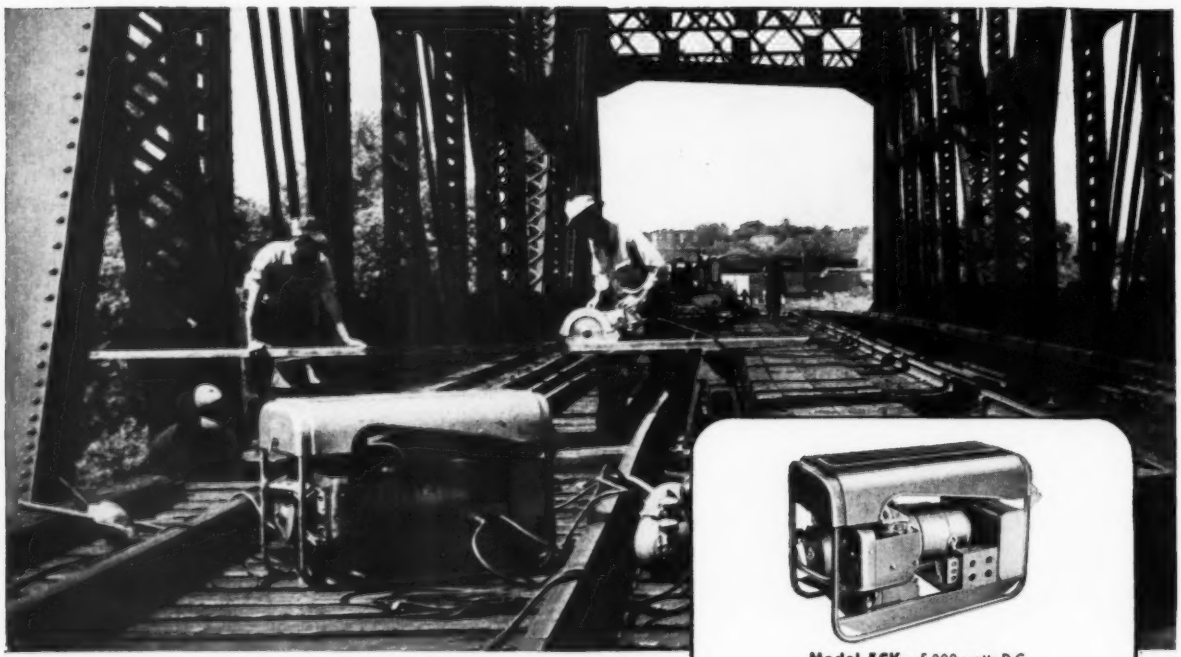
There's an ONAN Electric Plant for any railroad job!



ONAN builds more models, more sizes ...both gasoline and Diesel powered

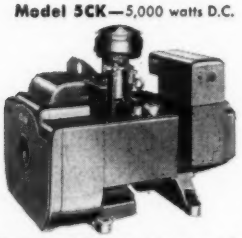
The full range of models in the Onan line makes it easy for you to pick the right electric plant for any railroad job. Where high capacity with light weight and compactness is essential, the Onan air-cooled CK and CW series give you outstanding advantages. The Onan 10CW, for instance, delivers 10,000 watts *with half the weight and in half the space* of competitive units of equal capacity.

Where operating economy with portability is an important consideration, Onan air-cooled Diesel-powered electric plants—the 3,000-watt Model 3DSP and the 5,000-watt Model 5DRP, are your choice.

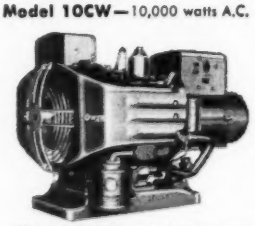
On large jobs where a continuous supply of electricity is required, Onan water-cooled gasoline and Diesel electric plants deliver up to 55,000 watts day-in and day-out.

Look into the worthwhile labor savings that can be made by using electric tools powered by Onan electric plants, *on all construction and repair jobs.* You can get the work done *electrically*, faster and at less cost.

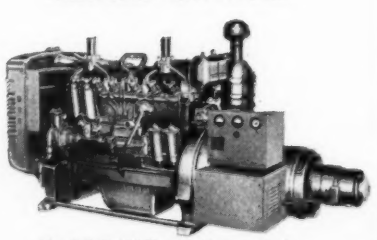
Model 5CK—5,000 watts D.C.



Model 10CW—10,000 watts A.C.



Model 5DRP—5,000-watt Diesel



Model 55DAY—55,00-watt Diesel

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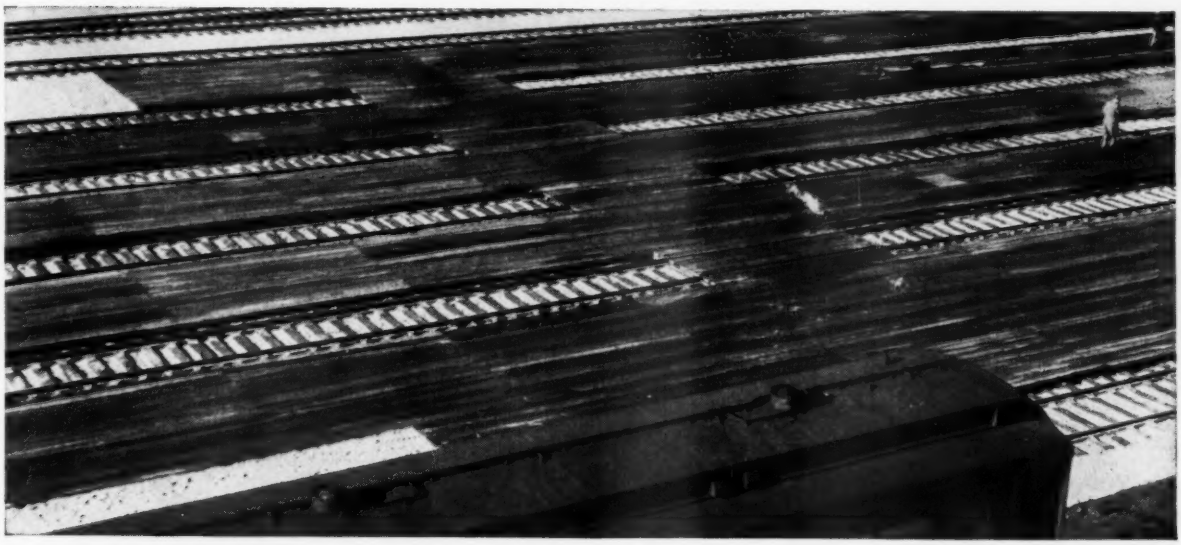

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Include PENTA in *your* planning for both new construction and repair lumber. For helpful information about effective *PENTAchlorophenol protection, write to THE DOW CHEMICAL COMPANY, Midland, Michigan.

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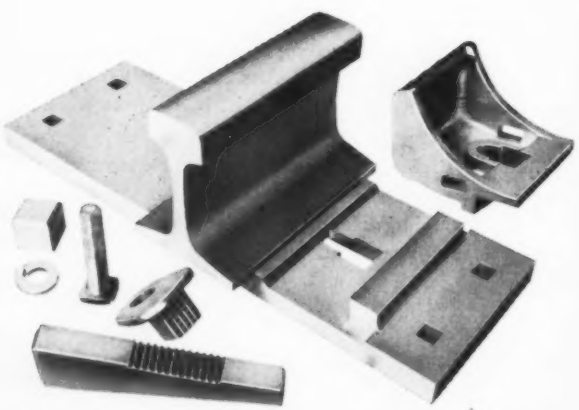
1. Assembly takes place after the rail is seated on the plate and plate has been spiked to the tie.



2. Brace is snugly fitted into the fishing of the stock rail. Bolt is then inserted from the top with the head down, moved in toward the rail until bolt head is positioned and held under shoulder in bottom of tie plate.

The New, Self-locking USS Taylor Adjustable Rail Brace

THE new Taylor Adjustable Rail Brace offers advantages found in no other rail brace. Combining the simplicity of good design with rugged construction, it insures sturdy rail support – takes the repeated side thrusts of heavy, fast traffic without loosening, thus maintaining track gage and alignment.

Installation is quick. Rail, tie and plate need not be disturbed. And once installed, the USS Taylor Adjustable Rail Brace is *locked* in position. Even if the cap nut becomes loosened, the locking plate with its serrations interlocking those of the wedge will continue to hold the wedge in the proper position. The bolt serves merely as an anchor for the locking plate plug, while the cap nut and shielded locking plate protect the bolt threads against corrosion.

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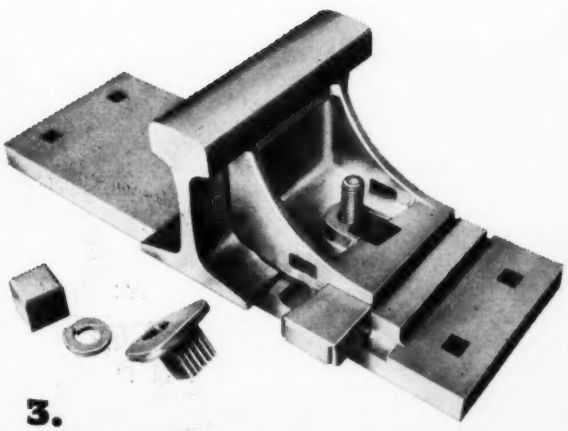
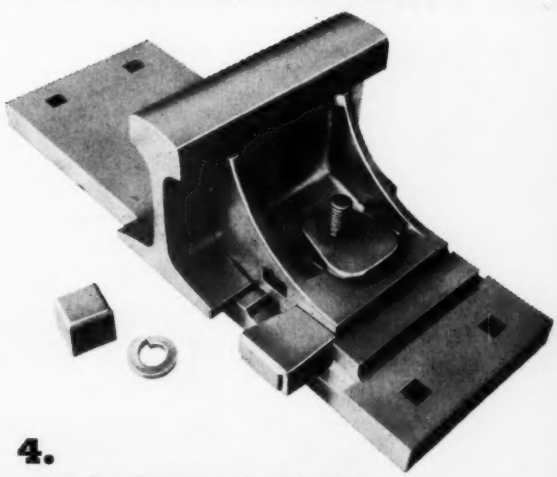
USS TRACKWORK



3.
Wedge is then driven tight with its serrations facing the rail. Opposite side of wedge is inclined to fit the undercut face of the stop block.



4.
Locking plate plug is dropped on bolt and into hole in brace. Serrations on outer face of plug engage those of the wedge, while inner smooth face of plug engages the vertical shoulders of the brace. Spring washer is then placed on bolt, and cap nut is applied and tightened.

USS

UNITED STATES STEEL

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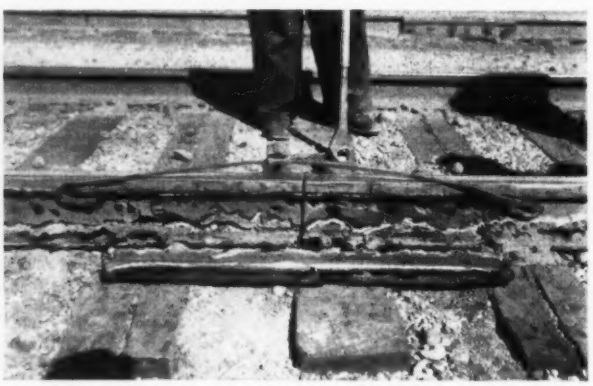

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"Constantly heavier loads and higher speeds place an increasing burden on the rails, and track safety is more important today than ever before," says W. C. Perkins, Chief Engineer of Union Pacific. "U.P. bases its testing program on the premise that rail defects will occur. The best defense is to test often enough to locate defects while small . . . before rapid or sudden growth to failure has started."

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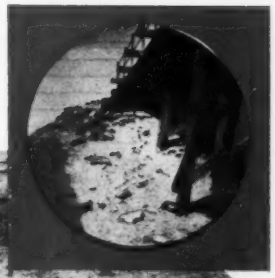

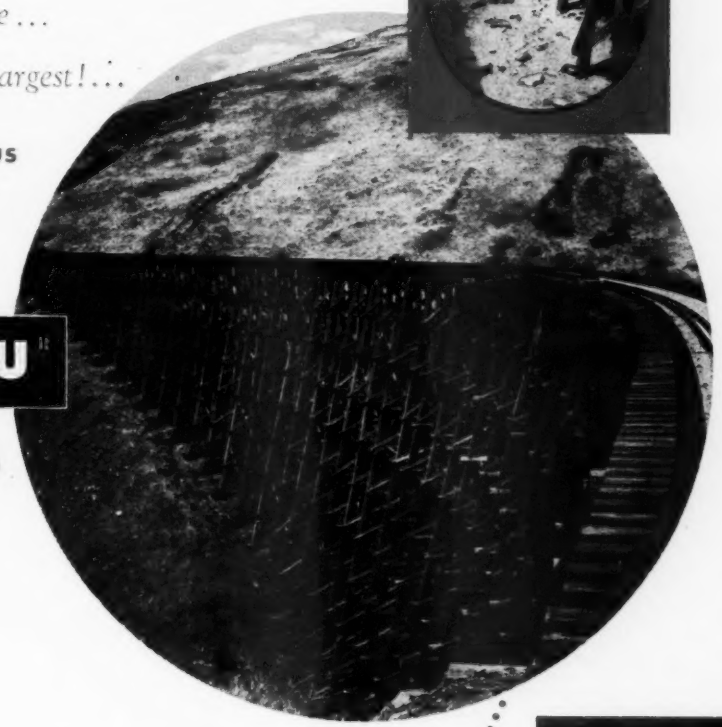

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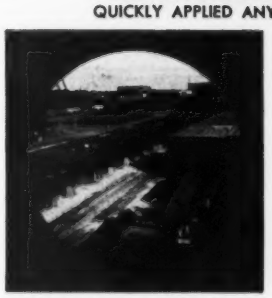

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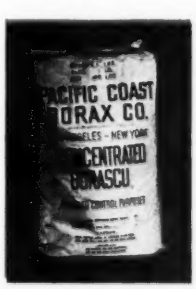

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No. 305 of a series

RAILWAY TRACK and STRUCTURES

SIMMONS-BOARDMAN PUBLISHING CORPORATION

79 WEST MONROE STREET
CHICAGO 3, ILL.

May 1, 1954

Subject: "Information Please"

Dear Readers:

One of the interesting aspects of the technical publishing business is that a magazine in a given field is used as a sort of unofficial information bureau by persons both in and outside the field. At least that is the way it seems to us. By telephone and by letter we are frequently called on to answer questions pertaining to the design, maintenance and construction of railway tracks and structures.

Some of these questions are relatively simple and can be answered more or less off the cuff. Some recent examples of such questions are: Is a certain track device still manufactured and by whom? How did the term "out of face" originate? What is the plural of "right of way"? How many new crossties are inserted annually by all the railroads in the country? What is the average hourly wage of track laborers?

Other questions are more complex, requiring research on our part before we can answer them satisfactorily. Many of these have to do with the extent of the market offered by the railroads for manufacturers' products. Frequently we can answer such questions from data available in our editorial files. Sometimes, however, this is not possible, and that is where our Research Department is brought into the picture. This department, which functions on behalf of all Simmons-Boardman railway publications, was established years ago for the primary purpose of developing information for manufacturers on the railway market. Needless to say, there is a wide and constant demand for its services.

Now let me ask you a question. How many of you know that in our New York office is maintained one of the largest transportation libraries in the country? In this library, in charge of a full-time librarian, you will find hundreds of books, new and old, dealing with every phase of the railroad industry. Its facilities are widely used by persons wishing to develop comprehensive information on particular phases of railroading.

Frankly, we enjoy our role as an "information bureau." It is only human to derive satisfaction from being recognized as an authority in a given field of knowledge. What is more important, however, is the fact that the answering of questions put to us by our readers and advertisers is considered part of our job. It is one of the ways in which we are glad to be of service to you. Any questions, please?

Yours sincerely,

Merwin H. Dick

Editor

MHD:lw

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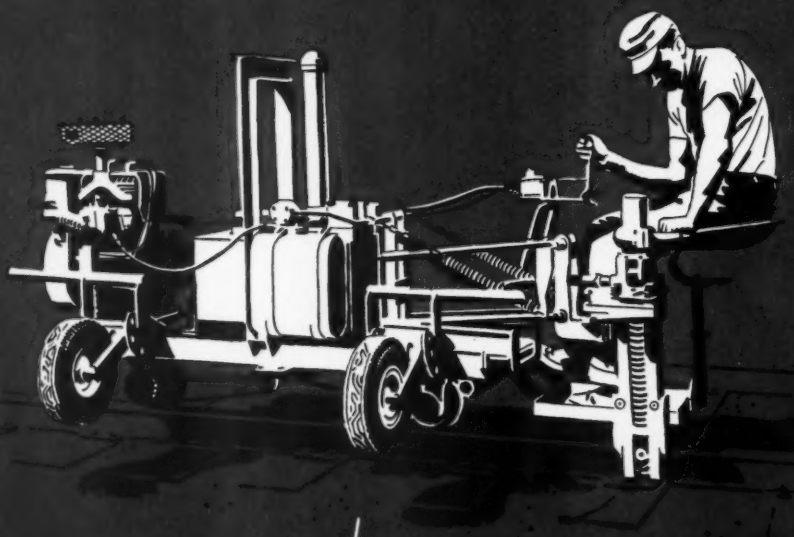

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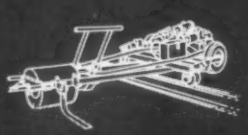
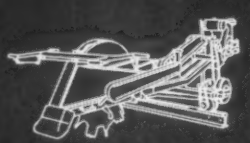


W85 SERIES A TIE BRUSH cleans tie areas under and adjacent to the tie plate hydraulically pulled. It is well suited to gang use ahead of adzers and for cleaning prior to application of plastic base for tie plates.



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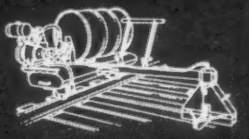

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For every phase of railway maintenance, Fairmont designs and builds a wide variety of equipment that answers perfectly the needs of modern railroading. Consider, for a moment, the problem of rail renewal. The most recent Fairmont development in this field, the W85 Hydraulic Spike Puller, is shown above in action. It has been designed especially for rail gang use, and is self-propelled for both forward and reverse. Requiring only one man for operation, its pulling assembly, controls and operator's platform and seat can be positioned for pulling spikes on either side. Working in pairs, the W85 machines have a capacity of from 40 to 50 spikes per minute and can handle the needs of an average gang of 75 men. This unit is one of Fairmont's latest additions to a complete line of products created expressly for rail renewal. Each is the result of years of research in design and engineering—and of comprehensive testing under actual field conditions. A representative selection is shown and described above—and we invite your inquiry on these or any other products in which you are interested. You will find, we are certain, that Fairmont is your finest source for every maintenance requirement.

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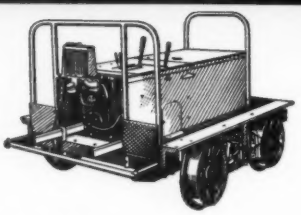

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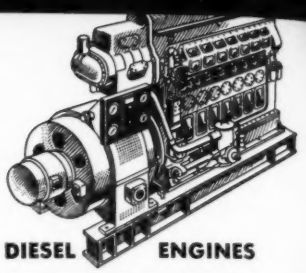

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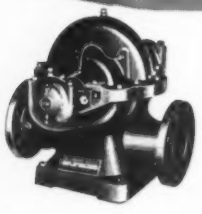

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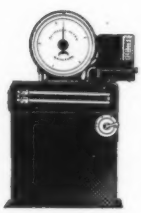

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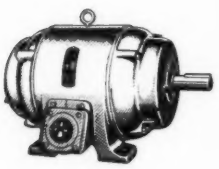

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Trends in Tie-Renewal Policy

Maintenance officers of particular roads may insist that their present tie-renewal practices represent the ultimate in economy that can be expected. Nevertheless there are strong reasons for taking the position that this is a field toward which it is necessary to maintain an open mind if advantage is to be taken of opportunities, present and future, for achieving the highest degree of economy.

Basically, there are two general methods that may be used when renewing ties: (1) In connection with track-raising and surfacing operations; and (2) without benefit of a track raise. When the first method is used the operations of removing and inserting ties are facilitated by the fact that the track is in a raised position when the work is done. On the other hand, the second method, used most commonly when ties are renewed by section forces, requires that the ties be "dug in."

On most railroads a combination of these two practices is followed, with individual roads leaning more heavily toward one or the other for making the bulk of their tie renewals. Consideration must now be given to the fact that the present policies in this respect were put into effect long before mechanized equipment had been perfected for taking out and inserting ties.

The question now to be answered is this: What changes, if any, are indicated in basic tie-renewal policy on individual roads due to the successful mechanization of the tie-renewal procedure? The considerations involved are too complex for a quick answer to this question, and the costs at stake are such as to call for a considerable degree of caution in arriving at final conclusions. These are good reasons why the subject should now be receiving careful consideration.

Power Equipment for Terminals

One of the most difficult problems that a terminal roadmaster has to contend with is to convince management to assign power equipment to him on a permanent basis. When he asks for a certain machine, he is usually confounded with the question "How much time each month will you be using it?"

Sometimes it seems impossible to justify the cost of a machine on a time-employed basis, yet the terminal roadmaster is constantly being confronted with situations where a machine means getting a job done promptly when it is necessary, and which otherwise must be accomplished a small part at a time with much time wasted. He is never certain very far in advance when or how long the yardmaster will give him "the nod" so he can tie up a track.

As a result, he cannot let his superintendent of work equipment know his need for a machine far enough in advance to be assured of its temporary assignment to him, and he ends up by having to do the work by the more expensive and time-consuming hand methods.

Among the machines that terminal roadmasters can use to good advantage are rail drills, bolt tighteners, power jacks, power tampers, tie saws, spike pullers, and adzing machines. Although these machines will not be in use all of the time, a terminal roadmaster, having a mileage of 200 miles and up, should be able to build up a pretty good case for their use.

On those railroads where management cannot see the justification for buying machines for sporadic terminal use, there is every justification for having the latest improved models for use by the large rail laying and surfacing gangs. The released machines can, before their complete obsolescence, be assigned to terminal use.

When its first Gradall proved so helpful in ditching and other earthmoving work as to create a demand for its services, the ACL procured additional units. The versatility and effectiveness of these machines for maintenance have made it possible to release men for other important work. The road now has 14 Gradalls which are engaged in a large number of maintenance operations.

For Ditching, Sloping to Improve Drainage . . .

BACKSLOPING is done by a Gradall working first from the bottom, then from the top of a cut to give an accurate, uniform slope.

ACL Uses the

Gradall as a Maintenance Unit

● When the Atlantic Coast Line purchased its first Gradall machine, it was aware of the fact that the unit could be gainfully employed for cleaning ditches, constructing roadways along the right of way for the use of off-track equipment, and restoring embankments. Having a large amount of such work to be done, the unit was kept so busy that additional units were purchased and assigned to the territories of the general roadmasters. At first these machines were used for the same work as that done by the first machine, but, as occasions arose from time to time, the Gradalls were employed in other applications, permitting available manpower to be released for other important maintenance operations. The various applications became known from division to division with the result that, although the ACL now possesses 14 of these machines, there is rarely a time when they are not busy and when some more work isn't being planned ahead for them.

The outstanding characteristic of the Gradall is the design of the telescoping boom and tool attachments, which permits them to function very much like a giant arm and hand. Being truck-mounted, it can travel at truck speeds over the highways and along the right of way, as well as along and over the tracks, permitting it to be moved promptly from one job location to another with a minimum of lost motion.

AN INTERCEPTING DITCH being formed with a ditch-digging attachment.

For Improvement Work

For a number of years the ACL has been engaged in a program of strengthening its roadbed and improving drainage over the entire main line. This program includes the raising of the tracks as much as six to eight feet to eliminate sags which had caused a great deal of trouble in the past in the form of broken drawbars of trains. It also includes the construction of shoulders on each side of the roadbed to provide roadways for the use of off-track maintenance equipment.

Where heavy grading is involved, the work is done by contractors using heavy earthmoving equipment for building up the shoulders, after which the track is raised on a sand fill. To prevent water from being trapped under the raised tracks, Armco perforated pipe laterals are installed at suitable intervals as bleeder drains; then Gradall machines are used in excavating and backfilling around these drains. At some locations, such as around signal bridges and relay houses and under highway bridges, the grading contractor cannot efficiently work his heavy equipment, in which case the railroad employs the Gradall to com-

. . . and for Many Track Jobs . . .

EXCESS BALLAST is removed from intertrack space and spread on shoulders by a Gradall machine working alongside track.

TRACK LINING in connection with ballast operations is another use made of these machines.

plete the grading. In many instances it is necessary to move the telephone and signal pole lines toward the right-of-way fence to permit grading operations, and the Gradall units are used for expediting this work.

Where the amount of grading is not extensive, the Gradalls widen the cuts and build up the embankments without the aid of contractors' equipment. They are also employed for building up the approaches at grade crossings, as well as for improving the grade crossings. In connection with the latter work, the Gradall will be used to pull disconnected rails back from the crossing area, backfill with fresh ballast, and, after the ties are replaced, pull the rails back into place.

YARD CLEANING is done by two machines lashed to the decks of flat cars and moved along by a work train supplied with gondola cars for loading the materials.

Does Work of 10 Men

After the track has been raised and tamped on stone ballast, the road uses the Gradalls for removing the ballast from the tops of ties, for removing the excess stone from the intertrack space, and for equalizing the ballast along the shoulders. Working from a roadway alongside the track, and using a digging bucket from which the teeth have been removed, the operator of the Gradall scrapes up the excess ballast from between the rails or from the intertrack space and, from the one spotting of the machine, swings the bucket and distributes the ballast along the shoulder. This work proceeds at the rate of about 200 track-feet an hour, and releases the equivalent of 10 trackmen for other work, according to one of the general roadmasters.

Each machine on the ACL is manned by an operator and two helpers. From his cab the operator maneuvers the boom and bucket. One of the helpers runs the truck from the driver's cab, and moves the unit forward or backward at the direction of the operator who communicates with him by bell signals. The other helper stands on the ground, warns of approaching trains, cleans the bucket and wheels of mud, when necessary, and otherwise makes himself useful.

This machine is also used for the out-of-face laying of rail up to 132-lb. section and even for lining track. During the latter operation, the helper on the ground moves a pole along the gage side of the rail until the foreman doing the sighting tells him to stop. The Gradall is then moved up along the embankment shoulder to this location. By placing the bucket against the rail opposite the pole, the track is pulled or pushed in the direction indicated by hand signals from the lining foreman. Then the machine is moved to the next throw point.

In addition to employing the Gradalls along the track in open country, the road has found numerous occasions to use them in towns and terminals. They are frequently used as cranes for loading rails, frogs and railroad crossings into gondola cars, and for unloading them. They are often used to load dirt and debris into open-top cars, for clearing snow from station platforms, and for trenching in connection with the installation of pipe lines.

Another use made of these ma-

. . . With Results as Shown by These Views of Completed Jobs . . .

WIDE EMBANKMENT SHOULDERS are constructed by the Gradalls for use by off-track maintenance equipment.

SIDE DITCHES are constructed accurately using Gradalls.

THIS HIGHWAY CROSSING and approaches were ripped out, improved and restored by a Gradall.

AROUND SIGNAL BRIDGES and under telephone wires the Gradalls are employed to complete the grading.

chines is in cleaning dirt and debris from yards and yard tracks. For this operation two machines are used with a work train, with each Gradall lashed to the deck of a flat car. With a gondola car inserted between them, the machines scrape up the dirt and car droppings from adjoining tracks and load the material into the gondola car. For this work an 8-ft. scraper blade is used because its greater width reduces the number of passes required.

The ACL has found these machines to be particularly beneficial for cleaning out and deepening ditches in restrictive locations where precision is needed in shaping the side slopes and in maintaining a uniform grade. In some towns a ditch from five to eight feet deep is required for proper drainage, and the space available between a side track and a highway built immediately adjacent to the right-of-way property line is often just wide enough to contain the drainage ditch. Working from the highway, the Gradall cleans out the ditch to exact slope requirements and loads the material in trucks for disposal at some convenient location. In some instances where it was desirable to lower pipe drains under streets the Gradall was used to excavate and lower the pipe to the new grade, and to backfill the trench.

Machine Maintenance

The crews of these machines are housed in camp cars which are moved about the railroad in trains to conform with the movements of the Gradalls over the highways to new work locations. A bunk car and a tool car are assigned to each Gradall crew. The tool car contains supplies and various boom attachments for the Gradall, as well as tools ordinarily required for the proper maintenance of the machine.

The operators work under the direction of the general roadmasters and are responsible for the ordinary maintenance of their machines. When repairs are necessary, the operator communicates with the general roadmaster who dispatches a traveling mechanic to the scene. If a new part is required, it is ordered from the road's system work-equipment shop at Savannah, Ga., and the part is shipped immediately. If the machine is in need of a general overhaul, it is shipped to the shop at Savannah.

The ACL is well satisfied with the usefulness and performance of its Gradalls. One general roadmaster stated that he regarded this unit as one of his most useful maintenance machines and that he has not yet learned all of the applications on which the Gradall can be used.

The Art of Track Lining . . .

Part I—How to Get Started

By L. C. Blanchard
Roadmaster
Chicago, Milwaukee, St. Paul & Pacific
Minneapolis, Minn.

Because good track-lining foremen have always been scarce, it is the general conception that "track liners are born, not made." But the author takes a contrary view. From his own experience, he is convinced that foremen can be taught the principles of the lining technique so as to make them proficient in this pursuit. "How to Get Started" is the first of three articles in which Mr. Blanchard will explain in detail how to do a good job of lining track. Ensuing installments will deal with good and bad techniques and other secrets of the trade.

TRACK LINING is a skill that can be acquired with the right technique.

Leo C. Blanchard was born at Mitchell, S. D., on December 28, 1903. In January 1920 during his high-school education, he commenced work with the Chicago, Milwaukee & St. Paul as an extra-gang laborer. After a few months he was employed as a sectionman at Buffalo Springs, N. D.

On July 4, 1927, he was appointed as a relief section foreman until his permanent assignment as section foreman at Stratton, S. D. On August 1, 1929, he was promoted roadmaster at Trail City, S. D. About one year later, the depression forced him to return to the position of section foreman.

For the next several years he alternated between section foreman and extra-gang foreman, during which time he also served as an instructor for breaking in the younger foremen. Then on February 1, 1937, he was appointed roadmaster again, this time at Spencer, Iowa. He later served at Mitchell, S. D., until his appointment as roadmaster of the Twin City terminals in August, 1950.

● "Track liners are born, not made." You have heard that statement over and over again. Maybe it is so, but I for one am far from being convinced that it is. We are speaking of persons who can line tangent or curved track in a satisfactory manner without the aid of an optical lining instrument or to center stakes.

I am going to take issue with the proposition that track lining cannot be taught.

The purpose of these articles will be to pass along the instructions that I received on my first big lining assignment and the information that I have gathered over a period of years on this important subject. I propose not only to point out the technique that is required to do the best possible job, but also to show how to do that job at the least expense. It is my hope that this series will provide the supervisor who does not claim to be a good track liner with an understanding that will allow him to discuss the subject comprehensively with his subordinates.

In the United States we have 225,308 miles of maintained trackage on Class I railroads. In round figures we have 12,000 section foremen and other foremen in charge of crews lining track. If, on the average, we spend $40 per mile per year for lining, we will have spent better than $9 million per year. With this amount of money being spent, it should be possible to effect substantial savings through proper training of personnel.

In a recent article, someone stated that eye lining is still the most economical means of producing satisfactory line, providing that you can find a man with the necessary skill. Someone else says, "Why bring that up? No one lines by eye these days; all lining is done by instrument." The facts in the case are that while a good deal of the out-of-face lining is being done with the aid of an instrument, a very large percentage of this work is still being done by eye and no doubt will continue to be so done for some time to come.

Lining Still Done by Eye

Lining instruments are not furnished to all section foremen. A foreman must do a certain amount of lining while engaged in spotting or shimming track. On much of this work, he wouldn't be bothered with an instrument even if he had one immediately available. Also, on many branch and secondary lines, lining instruments have not been furnished to extra gangs engaged in tie renewals or other maintenance work, yet it is expected that the track will be lined.

What training or instructions does the average track liner ever get? From my experience I would say practically none. If you ask a fellow track liner for some tips or instruction, he will tell you it is something you just have to work at and learn by yourself.

The ordinary procedure is for two or more section crews to

When Lining with a Bar . . .

THE WRONG WAY not only results in severe strain on the back but also places the man in a position for an injury.

THE RIGHT WAY, with bent knees and straight back, will let the legs do the lifting with less possibility of injury.

double up to line track. The foremen get in a huddle and debate who will do the lining. Finally, one volunteers or is bullied into it. He starts out and does the best he can. Once in a while someone develops unusual proficiency in lining and he immediately becomes much sought after, particularly by extra-gang foremen whose perennial cry is, "Who is going to line the track for me this season?"

Requires Good Judgment

Occasionally someone will develop into a good golfer, bowler, billiard player or rifleman without any special instruction, simply because he has the desire, perfect eyesight, coordination and good judgment. We say of such a man that he is a born golfer, rifleman, etc., as the case may be. The fact is that a great many people can become proficient in any one of these skills, provided they are taught the right technique under the watchful eye of an expert. There is a right way to stand, swing and follow through for the golfer. There is a right way to step forward, swing and follow through with a bowling ball, and right way to hold a rifle and squeeze off a shot. It is no less true in lining a stretch of railroad track. Each is a special skill that must be practiced with the right principles and technique in mind.

If lining track can be taught, who is to teach it? When you consider that any railroad has but very few qualified track liners, and that not one in 10 of them can put into words what it is that makes his work outstanding, you begin to get some idea of the problem. Any extra-gang foreman, roadmaster, or division engineer can tell the difference between good and bad line, but few of them can produce it or can teach another how to obtain it.

Now that instrument lining has become more of a regular practice on many railroads for out-of-face jobs, the problem has become less acute. It is much easier to teach a man to line track with an optical lining instrument than it is with the unaided eye. Nevertheless, the man who is able to line with his eye will do a better job when using an instrument than one who cannot. The reason is that he has a better knowledge of how to place his men to obtain the exact throw required. Also, he knows what to do in case something goes wrong with the instrument.

In this modern age, any track liner should have a working knowledge of the optical lining instrument. To be an expert track liner, however, a man should be able to line with either his unaided eye or with an instrument. Since the instrument tends to rob one of confidence in his eye-lining proficiency, it is important that he learn to line by eye first. What, then, does a person need to know to become an expert track liner?

LINING GANG is led to the point of throw by the "lead" man and drop in beside him. Then a "yo-heave" called out has them throwing the track in unison.

Learning to Line

The desire to learn must be placed at the head of the list. While I have taught close to 50 foremen to line track by the methods herein outlined, I have had no success with those who went at it in a half-hearted manner, or with those who had their own ideas and were not willing to try something different. Lining is an exacting job and requires the very best that one can give it. A man should be satisfied to produce nothing less than

When Carrying a Bar . . .

THE WRONG WAY may endanger men both in front and rear of the carrier and makes the gang spread out to avoid injury.

THE RIGHT WAY presents less danger to adjacent men and allows gang to walk more as a unit to next throw point.

perfect line. He should read everything he can obtain on the subject and should ask for tips from other track liners. Above all, he should study his own mistakes and learn how to avoid repeating them.

Second, eyesight is so important that anyone planning to do a great deal of track lining should have his eyes examined and corrective lenses fitted if needed. A slight bit of astigmatism, which ordinarily would cause no trouble in reading or in other work, can bother a track liner. On the other hand, I know of a young fellow who was almost blind without his glasses, yet he developed into an excellent track liner. He had the determination that must be in the make-up of any good track liner and he went on to win one promotion after another.

Dark Glasses Important

Dark glasses are a "must" for a lining foreman for use at all times when needed. While amber is preferred by some, many lining foremen like the darkest smoked glasses obtainable. If corrective glasses are worn, one should provide an extra pair with darkened lenses, or else buy a pair of clip-on glasses. Whatever colored glass is purchased, it should be of optical quality. Any distortion in the glass would be ruinous to a track liner.

Cloudy days are best for lining track. However, whether cloudy or clear, it will be found best to line facing the sun. This direction will show the imperfections in the line most clearly.

Your lining gang should consist of from 4 to 16 or more men, depending on the weight of rail and the ballast conditions. Your first duty as a lining foreman is to instruct your men in safe practices. Teach them to lift with the strain on their knees instead of on the small of the back. Any time a man can feel a strain on his back, he is lifting improperly and in time this could lead to backaches or serious injury. Always lift with the knees bent and the back straight.

Under no circumstances should you allow a man to straddle a lining bar. It is a natural tendency for some men to do this, and you will have to get a little "hard-boiled" until you can break a man of this tendency and he learns to lift with both feet on one side of the bar. The reason for this should be obvious.

Never allow men to carry a bar over the shoulder where it could strike a man following too closely behind. It is a good way to have an eye punched out. Do not allow the men to walk on top of the rail. There are many hazards for personal injury on a lining gang, but most of them can be avoided by an alert and determined foreman who has a working knowledge of the safety rules of his company.

Hand Signals Are Important

On windy days it is almost impossible to convey information by word of mouth to the lining gang as to where to place the lining bars. Therefore, it is of utmost importance that hand signals be developed for this purpose. They should be given so as to be plainly seen.

The hands joined together above the head is a good signal to indicate a joint. A hand motion to "go away from" or "come towards me" should be followed by a signal to throw either to the right or left. Touching the right elbow with the left hand and pointing to the right, will indicate that the center should be

A Word of Advice for the Younger Men

"Young men who are ambitious to get ahead in the track department will do well to become proficient at lining track. Men who are good track liners have the qualities that can lead them to become good at almost any other phase of track work. Good track liners are looked up to by other trackmen and are held in high esteem by railroad management. Other things being equal, it is the high road to advancement.

"Track raisers and track liners have much in common, yet it is a strange coincidence that liners can nearly always be developed into good raisers, whereas the percentage of rasiers that make good as liners is much smaller. For some unknown reason, a man can be talked into starting out as a track raiser, but he will shy away from a lining job. Yet, if a raiser makes a mistake in his raising and the track is tamped before he discovers it, he is in real trouble. On the other hand, the liner can correct any mistakes he makes without a great deal of trouble."

THROW AT CENTER and to the foreman's left (outward throw in this case).

THROW AT QUARTER and to foreman's right (inward throw in this case).

THROW AT JOINT signal should be followed by arm pointing the direction.

thrown to the right. Crossing the forearms can indicate a throw of the quarter between a joint and center points. Other signs can be invented so that it will seldom be necessary for a lining foreman to talk with his men.

One man should be assigned to act as "lead" man. He should be at the head of the gang and farthest from the foreman. Immediately when he receives a signal, he should proceed to the next throw point and place his bar in the proper location so that the other men can drop in beside him without loss of time. A really good lead man is worth his weight in gold, and the foreman should not be satisfied until he finds a good one. Either the lead man or some other should call out a "yo-heave" so that every man will pull in unison. The caller will determine whether you have a good lining gang or a poor one, so don't be satisfied until you have him properly trained, or have found one with an instinct for leadership.

The "outside" man (the one nearest to the lining foreman) of the gang should receive the hand signal from the foreman and call out the location of the next throw to the men in the gang. This will save the foreman's vocal chords and, in a very short time, the men in the gang will themselves understand the hand signals.

How to Start

Now that you have the gang organized and ready to go, where do you start? As foreman you should walk back several rail lengths beyond the point where the lining is supposed to begin. You should then return, sighting the rail carefully until you find the last rail that appears to lie straight and true. You simply cannot be right unless you get started right. This is so important that it bears repeating. Usually the first throw will be so slight that you wonder whether you should bother with it at all. The answer is: If you can see it, throw it. If you are in doubt, throw it just a little too much and then touch it back. This will accent the next throw ahead and get you off to a good start.

The next questions are: "Should I stand up to do my lining or should I sit down on the rail?" and "How far should I be from my men?" The answer to these depends on a number of things. If you have exceptionally good eyes and line judgment, it may be possible for you to do a good job from a standing position. You should stand five 39-ft rail lengths, or about 200 ft, from your men, give or take one rail length either way. Whatever distance you decide is best for you, maintain that same distance at all times. If your men move forward, you move with them. If you bring them back, you should back up the same distance.

Many of our very best track liners do their lining from a sitting position on the rail. This is far from being the lazy way. It is downright hard work to rise up and sit down all day long when working with a lining gang. Nevertheless, for many this is the best way. The closer you can be to the rail that is being lined and still maintain perspective, the more clearly you can see what you are doing. When sitting on the rail, four 39-ft rail lengths, or about 150 ft, is the right distance to be from the lining gang. The standing position should be about 50 ft farther from the men than the sitting position to retain proper perspective. The foreman must be close enough to see the rail clearly, but he also must be far enough away to be able to project a straight line.

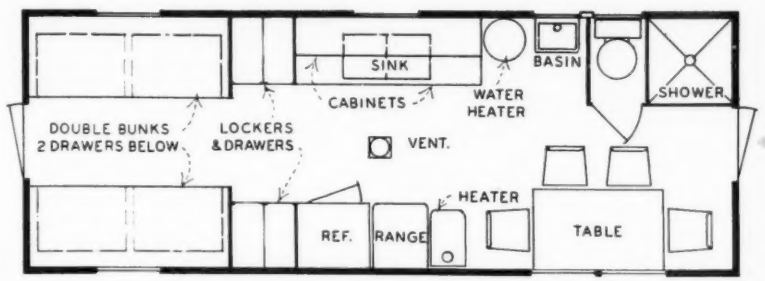
LINING POSITIONS for standing and sitting are one rail apart.

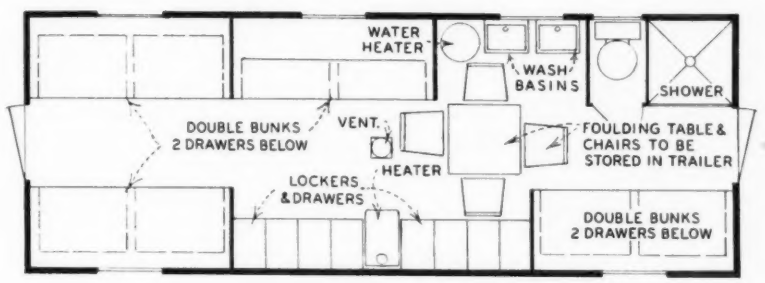
[In the next installment, to be published in the June issue, Mr. Blanchard will explain the "projection" method of lining track, and will describe the procedure for lining curves, with or without center stakes. Editor]

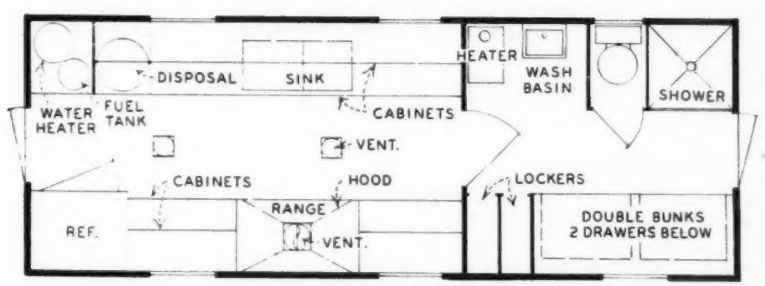
Introduces Specially Designed

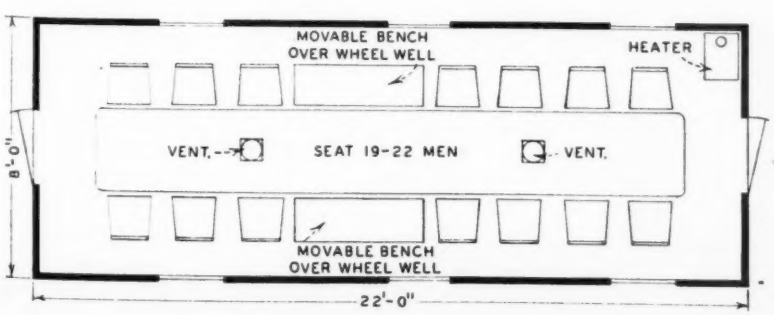
House Trailers for Mobile Camps

With the objective of making available to the railroads a series of house trailers adaptable to maintenance-of-way use, a manufacturer has designed four trailers which can be combined to fit the needs of most traveling crews.









● In recent months increasing interest has been displayed on the part of railroads in the use of house trailers for accommodating maintenance-of-way traveling gangs and repair crews. Due to this interest, the Morrison Railway Supply Corporation, through its international Equipment Division, has announced the design of a series of four trailer units which it expects will satisfy almost all railroad re-

4-Man Self-Contained Unit

quirements. As a step in this new venture, the company has acquired the assets of the Bellaire Trailer Company.

There are four types in the series, as follows: (1) A single unit with living, dining and cooking facilities and sleeping quarters for crews up to four men; (2) a dormitory unit with upper and lower bunks to accommodate up to eight persons,

Mobile 8-Man Dormitory

and complete with lockers, washroom, shower and toilet; (3) a single unit comprising a complete kitchen; and, (4) a dining and recreation unit designed to accommodate up to 22 persons.

Combinations of these four basic units can be varied in any manner to suit the needs of the crew or crews to be served. If desired they may be hooked up in series.

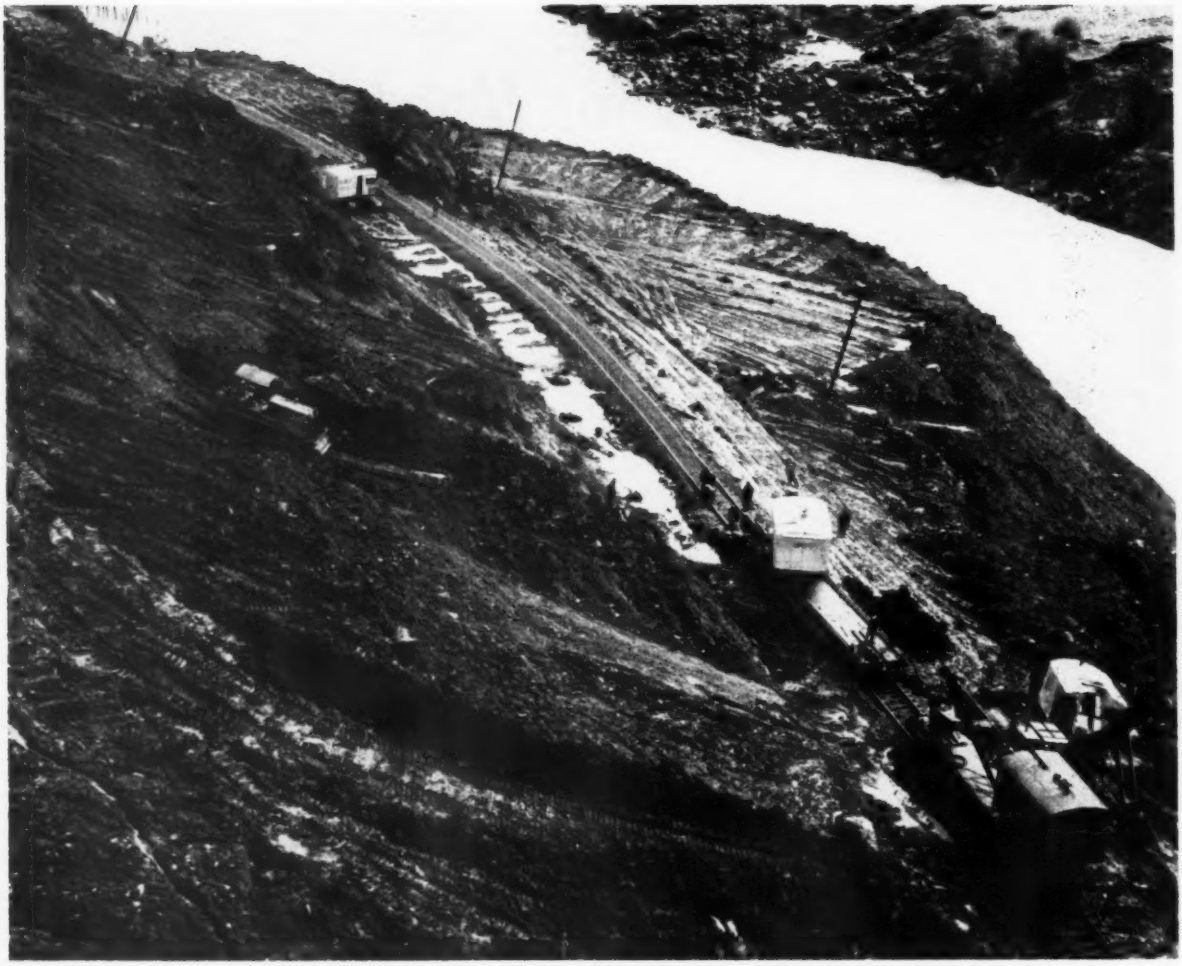
Complete Mobile Kitchen

Through the use of these "mobile camps," the manufacturer points out that maintenance and construction crews will be able to live in close proximity to their work, and, when the job is completed, move on to the next site without the complications involved in rail moves.

A unit for mobile camp development and construction has been set up by Morrison at Buffalo, N.Y.,

Dining and Recreation Unit

and a questionnaire has been sent to 350 top railroad officers asking for their comments on the use of this type of facility and on the proposed designs.



BULLDOZERS, working on the earth glacier, pushed the wet clay and rocks to within reach of the power shovels.

'Round the Clock Battle . . .

Railroad Vs. Sliding Mountain

CREVASSES, located well above the tracks in the slide area, gave the unstable mass the glacier characteristic.

● Once again the single track of the Northwestern Pacific through Eel River canyon was threatened with engulfment by the inexorable movement of a sliding mountainside in the same general region where a previous slide in 1938 cut off all rail service for 73 days. This time, by marshalling a work force of men and heavy earthmoving machines immediately after the start of the earth movement, and by employing them on an around-the-clock basis, the NWP was able to keep its two passengers and six freight trains operating daily along this route between San Francisco and Eureka, Calif.

Mass Moved Like a Glacier

The slide occurred at Mile Post 201, near Kekawaka station in northern California along an 11-mile stretch of track notorious for its slides and which requires constant vigilance and work. The problem became serious near the end of February when winter rains loosened a tremendous section of a mountain that began a steady

POWER SHOVELS, of both the on-track and off-track types, lifted the material from one side of the track to the other.

Winter rains loosened a large section of a mountain so that it pushed 600 ft of the face of a canyon wall toward the track of the Northwestern Pacific, threatening to slide it into Eel river. To cope with this problem, the NWP used large earthmoving machines to pick up the material from the wall side of the track, lift it to the other side, and push it into the river where it was quickly carried away.

OTHER BULLDOZERS pushed the wet clay over the bank into the fast-moving Eel river.

movement toward the river canyon below, threatening to engulf the railroad and push it into Eel river. About 600 ft of the canyon face was involved, but it was pushed glacierlike by a section of unstable clay which was about 6,000 ft long. The face of the canyon wall moved toward the track at an average rate of 4 ft a day.

Men and machines were rushed to the scene to begin their around-the-clock struggle. Because this country is inaccessible during the rainy season except by rail, the problem of moving heavy equipment to the site was made more difficult. The equipment employed in this action included five Caterpillar D8 tractors with bulldozer blades, two D6 tractors with 'dozers, an International TD14 tractor-'dozer, a half-yard Northwest shovel, two ¾-yd American ditchers, and a 1½-yd American Gopher shovel.

The method of combatting the oncoming mud and boulders was to have some of the bulldozers cut their way to the top of the canyon wall and from there push the wet material over the edge onto the side ditch on the bluff side of the track, where power shovels could pick it up and deposit it on the other side of the track. From there other bulldozers could then push it into the fast-moving Eel river where it could be carried away.

Within a period of two weeks after the start of the earth movement, the men and equipment had not only kept the sliding track in line but had also strengthened the toe of the mountainside and had cut drains to rid the earth mass of much of its water. Then the skies opened up again with cloudbursts and for several days poured rain by the inch over the area, followed by blizzards and more cold rain. In one 24-hr period the slide moved as much as 90 in.

Weather Hampers Operations

Working conditions were far from being ideal and the machines working along the track were literally wallowing in the slippery mass. At times the advancing mud covered portions of the track so that these sections had to be temporarily abandoned and new track laid around them to permit trains to pass safely. The track was constantly being pushed out of line and the section forces labored to keep the track in place and in satisfactory alinement. But traffic was not interruped.

This slide area has plagued the NWP since the line was built 40 years ago. After the previous bad slide in 1938, the railroad installed an elaborate drainage system for the purpose of drying up the base of the mass and forming a buttress against further slippage. It is the belief that the pressure of the water-soaked upper clay portion overcame the resistance of the drier earth below and started the movement.

The damaged drainage system is being restored, ponds drained, and, when dry enough for machines, an extensive system of surface ditches will be constructed.

SUPPORTS for new girder are a temporary steel bent (left) on new pier and a permanent rocker bent (right) on old pier.

Reduces Cost Through

Unusual Bridge Erection Plan

NEW GIRDERS, designed for Cooper's E-60 loading and weighing 20 tons each, were brought to the bridge site by the crane and off-loaded one on each side.

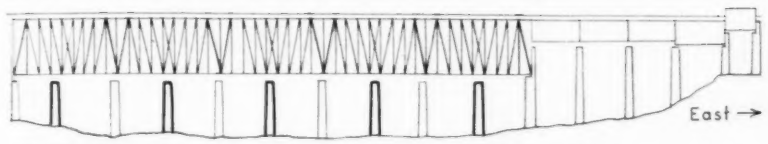
By E. J. Napier

Bridge Engineer
Canadian National, Toronto, Ont.

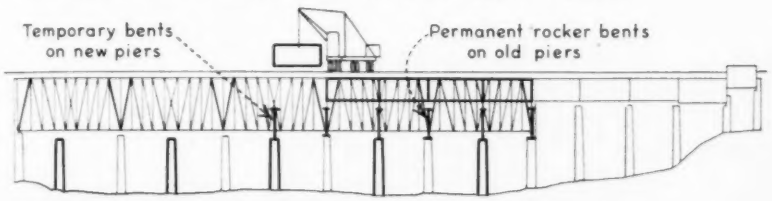
● The erection of 10 new, long, deck-girder spans for replacing five old deck-truss spans forming a bridge across the Grand river, made it necessary, if railroad forces were to be employed, for the bridge department of the Canadian National to adopt a novel erection expedient, which resulted in large savings.

This structure is located on the Hagersville subdivision, extending between Hamilton, Ont., and Jarvis, on a branch line which has increased in importance in recent years owing to the many new industries which have been built along it at various points. To handle economically the offering of increased traffic, it was imperative that heavier power be assigned to this subdivision. Unfortunately, this could not be accomplished un-

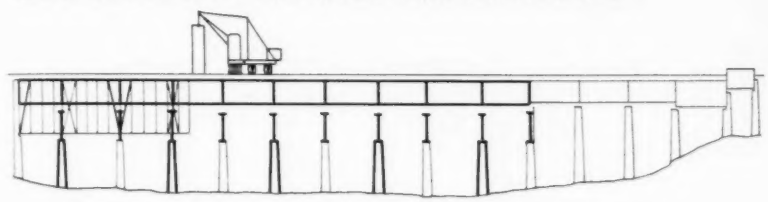
Major Steps in Reconstructing Grand River Bridge . . .



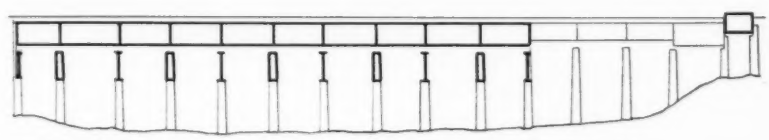
INTERMEDIATE PIERS constructed and cover plates applied to girders.



NEW GIRDERS installed on temporary bents and permanent rocker bents.



TRUSS SPANS supported by new girder spans while being cut up for scrap.



TEMPORARY BENTS encased in concrete and east span renewed over road.

When the introduction of heavier motive power made it necessary to reconstruct a long bridge over the Grand river, the Canadian National replaced five Pratt deck-truss spans with 10 deck-girder spans, strengthened four deck-girder spans and renewed one through-girder span. The problem of erecting the 10 girder spans for replacing the truss spans was solved by constructing intermediate supports, diverting traffic, building temporary slender steel bents on the piers, erecting the girder spans, which were used later for supporting the truss spans while they were being dismantled, and encasing the temporary bents in concrete.

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til the low-capacity structure over the Grand river was either replaced or strengthened.

The Existing Structure

Before reconstruction, the bridge consisted of five deck-truss spans, 148-ft 3-in center to center of end bearings, built in 1887, and four deck-girder spans, three of which were 69-ft 9-in center of center of end bearings and one 72-ft 3-in, together with a 44-ft 3-in through-girder span located over a roadway at the east end, all of which were fabricated in 1891. The trusses in the five 148-ft 3-in spans were of the Pratt type, the metal being of wrought iron. The bottom chords were composed of eye-bars, and the diagonals or web system were made up of eyebars and square rods. Top chords, end posts, verticals and the floor system were built-up members. The bracing was of square rods. All connections were made with pins, except the floor system. Owing to the type of construction of the trusses, there was no practicable way to strengthen these spans; consequently, they had to be replaced.

The four deck-girder spans are the usual plate-and-angle type of construction, the metal being of Bessemer steel. These spans also had a comparatively low classification. However, studies disclosed that they could be strengthened economically by the addition of top and bottom flange plates. The 44-ft 3-in TPG span, of equally low capacity, was not worth strengthening and was replaced.

Superstructure Good

The superstructure of the original bridge was supported on masonry piers and abutments, the river piers resting on a substratum of sand and coarse gravel containing large stones. The substructure was in good condition as it had been repaired a few years ago by underpinning the footing and solidifying the piers and abutments by means of the pressure-grouting method.

The river piers, although capable of supporting heavier locomotives than the superstructure, were found upon analysis to be hardly adequate for modern loadings. Since the Grand river is not navigable at this point, owing to the presence of a concrete dam a short distance upstream, there was no impediment to the construction of additional intermediate piers to reduce the load on the existing piers to safe limits. Moreover, by the introduction of intermediate supports, spans of the deck-girder type could be used economically, and, since the new piers would be of moderate height, considerable savings in cost could be effected.

Locating New Piers

When determining the location of the new piers, it was found that the most westerly pier could not be placed equidistant between the west abutment and the original west pier, owing to the presence of a concrete flume which carried water for the power operation of a mill a short distance downstream. This resulted in odd lengths for the two most westerly spans. The remaining four piers, however, could be placed midway between the original piers.

The new girder spans and piers were designed for Coopers E-60 live load, conforming to Canadian National standard specifications. The design called for 10 new deck-girder spans varying from 70 to 82 ft in length, one end of each span to be supported on a steel rocker bent resting on an old pier and with the other end supported on a new concrete pier.

The new piers were poured up to a predetermined elevation at a point below the bottom chord of the truss spans, and slender steel towers were provided for temporarily supporting the ends of the new spans coming on these piers. When the old spans were removed, these towers were encased in concrete by continuing the shafts of the piers up to final bridge-seat elevation.

DPG Spans Strengthened

The four existing DPG spans were strengthened by the addition of top and bottom flange plates. To avoid putting full dead-load stress into the flange angles of these spans when the old plates were removed to permit the new plates to be applied, it was necessary to construct temporary steel bents to support the spans at their centers, and no live load was permitted on any one span until the new cover plates were fully bolted in position. The work of strengthening the existing girder spans was carried out in advance of the erection of the new spans.

The replacement of the through-girder span over the roadway was made with secondhand girders, which were altered to suit. Owing to the limited vertical clearance over the roadway, it was necessary to provide a shallow floor system, which consists of transverse steel beams of wide-flange section. A steel protection plate was riveted to the tops of the beams, and the running rails of the track were supported on malleable-iron rail chairs bolted to the top flanges of the beams through the plate. The TPG span was fabricated in the road's Danforth bridge shop, and the DPG spans were fabricated by the John T. Hepburn Company, Ltd., Toronto.

Erection Considerations

After studying various methods of erection, it was decided to use a single crane and to commence the erection work at the east end. Consideration was of course given to constructing falsework, but the nature of the substrata of the river bed precluded the use of timber piling. H-pile construction was the only type of falsework that would have been feasible, however this would have been quite expensive.

Consideration also was given to rolling the spans into position after erecting them on temporary supports beside the existing spans, but there were a number of objections to this proposal besides the high cost.

With the erection method determined, the bridge department had the alternative of either renting a derrick car from a bridge company, or devising some scheme to increase the lifting capacity of railway equipment. The heaviest railroad-owned locomotive cranes available were machines of 40-ton rated capacity with the boom set at a radius of 15 ft, measured from the king pin. It was obvious that these cranes could not handle the 20-ton girders at their midpoints without overloading the machine and overturning.

"Hog backing" cranes is not new. The usual system used is to couple a second crane behind the working crane and tying off the boom of the forward crane with the load-falls of the rear crane. There is always an element of doubt, however, in regard to the actual amount of assistance the second

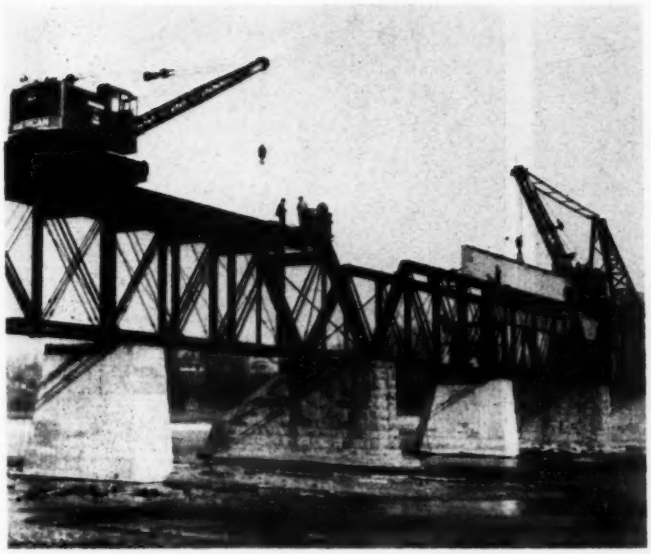
How Cranes Were Adapted

To permit cranes of 40 tons capacity to handle the new girders for the Grand River bridge, a design for a tie-back system was developed which is essentially as follows: The steel underframe flat car, used for supporting the boom while the crane is in transit from point to point, was employed to support a steel A-frame which was connected to the frame of the car at the center line of the forward truck. Back stays, which consisted of two segments of steel angles, were braced together and connected to the rear of the car. This end of the car was then counterweighted with old precast concrete slabs and scrap steel sections. A steel linkage, consisting of short steel eye-bars, was carried from the top of the A-frame connection to the top of boom at the becket. The radius of the boom was fixed for handling the longest girders.

The whole assembly was fabricated in the railway's Danforth bridge shop, and was thoroughly tested at that point. The test consisted of handling the heaviest girder to be erected, and was made more severe than the actual conditions likely to be encountered. In the test the boom falls were slackened; however, in erecting the girders in the bridge, a slight strain was taken on the falls as an added precaution. Satisfied with our erection equipment, the tie backs were dismantled and the equipment was shipped to Caledonia, which is about a half-mile from the bridge site.

A temporary steel gantry frame was set up in Caledonia yard to support the linkage during the time the boom car was uncoupled from the locomotive crane while it was being employed for handling the steel towers, bents, bracing and other materials. At this point it should be pointed out that the drawbars of the crane and boom car were prevented from moving longitudinally and vertically by a special harness of steel plates bolted together.

TIE-BACK ARRANGEMENT, anchored to counterweighted boom car, permitted this crane to handle the 20-ton girders.



A SECOND CRANE removed the floor system from the old truss.

DECK GIRDERS are carefully inserted between the old trusses.

machine gives owing to a number of factors. This type of "hog backing" was given scant consideration in this particular erection job. The special tie-back system that was adopted and used on this project is described in an adjoining space.

Traffic Is Detoured

The time chosen for the erection work was during the low traffic period of the year. When all preparatory work was completed, traffic was suspended and detoured to other lines via nearby junction points. The steel tower for supporting the ends of spans No. 1 and No. 2 was landed on the pier in sections. Then, after first removing the rails and timber deck, which were taken to shore for temporary storage by means of a second crane operating from the west end, the floor system and top lateral bracing were cut out of the most easterly deck truss span by oxyacetylene cutting torches.

The bearings of the existing deck-truss span were removed and the ends of the trusses were supported on special steel chairs. This permitted the tower bent to be moved into position, its sections being braced with steel angles arc-welded in place. The top chords of the trusses were temporarily braced with steel angle struts.

With this work completed, the self-propelled crane was brought to a suitable point adjacent to the bridge site. Ahead of it, and separated by an idler flat car for adequate clearance, the locomotive crane pushed a car loaded with the new girders for the first span to be erected. When the girder-loaded car had been spotted near the east end of the bridge, the locomotive crane then switched the idler car to a siding in Caledonia yard and returned for offloading the girders. These were placed one on each side of the track and properly shored. The crane then switched the now empty car into Caledonia yard and returned to the bridge site a third time for actual erection operations.

Placing the Girders

The first girder was picked up, swung to the center line of track, and carried forward at about rail level to the opening between the trusses where sufficient temporary top-chord bracing had been removed to clear the girder. After the girder was positioned, it was lowered to an elevation just clear of the supports, swung over and landed on its bearings. Shores, consisting of steel angles, were arc-welded to the towers and girder. The second or companion girder was erected in a similar manner.

The crane was then moved back to the yard, where the "hog backing" was removed, after which the crane was used for filling in the steel bracing, which was bolted in position. A riveting gang started work immediately riveting the top-bracing connections so that a temporary timber deck could be installed without interference.

The nine remaining girder spans were erected in a similar fashion, with the bridge being out of service for approximately three weeks.

The old trusses, which had been shored to the new spans were removed without falsework. To accomplish this, 12-in. steel wide-flange beams, supported on the top flanges of the new spans, were threaded under the rails at suitable intervals with their ends cantilevered. The top chords of the old trusses were connected to the outer ends of these beams by means of long bolts fastened to short pieces of angles to form a cradle. The trusses were then cut up by oxyacetylene cutting torches into sections for easy handling by the locomotive cranes and were loaded on cars for shipment to the railway's scrap yard, together with all other scrap metal.

The erection work was carried out by a regional steel bridge gang under J. C. Murray, foreman, working under the direct supervision of W. M. Wiber, structural field engineer, and the general supervision of K. Huffman, chief engineer, and the author. The design for reconstructing this bridge was prepared under the direction of T. H. Jenkins, former bridge engineer on the Central region, now promoted.

A CHIMNEY SUPPORT BASKET is set into a prepared opening between the ceiling joists and nailed in place.

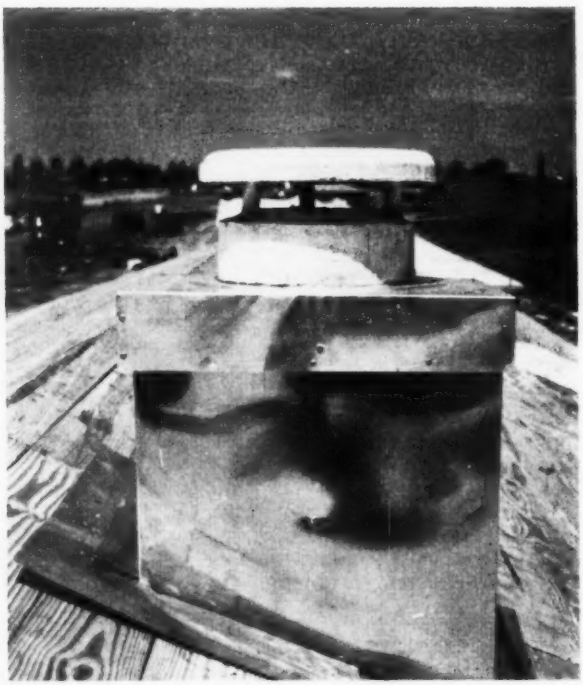
CHIMNEY SECTIONS are then installed and cemented to each other with thermal setting joint cement.

Installation of lightweight chimneys, supported by ceiling joists, provides adequate flue outlets for oil-fired space heaters in the construction of two buildings. Flexibility as to positioning of the chimneys permitted their installation at the most convenient locations without need for expensive foundations.

For Construction Economies . . .

C&NW Uses Prefabricated Chimneys

FLASHING PLATE of aluminum and rectangular chimney housing cover the portion of the chimney above the roof.



CHIMNEY HOUSING is topped by aluminum housing cap, fire clay chimney pot and rain cap.

● A lightweight prefabricated chimney, designed to be hung from the ceiling or floor joists of a building, has been installed on the Chicago & North Western in two new buildings. The design of this chimney is such as to eliminate the traditional construction requiring a footing and masonry support from the ground up. Also it permits considerable flexibility in the location of the smoke outlet in the building of which it is a part. The experience of this road is that use of the packaged chimney results in a saving of about 60 per cent compared with standard construction.

The chimney was initially specified in connection with the construction of a 21-ft by 26-ft concrete-block building constructed at Council Bluffs, Iowa, to house a signal maintainer's office, motor-car house and store room. In this installation the chimney was placed directly over the smoke outlet of an oil-burning space heater which was located in the office portion of the building. The second installation was made in a 30-ft by 50-ft frame building on a concrete foundation, which was constructed to house the local car-department forces at Waukegan, Ill. For this purpose the building was divided into three rooms each of which is heated by a separate oil-burning space heater. These space heaters were all vented to a single chimney, centrally located to provide for the minimum run of pipe from the smoke outlet of each heater.

Installation Simple

Both of these installations were in service during the winter of 1953-54 and the railway reports that they have given satisfactory service. Installation of this type of chimney is relatively simple. A chimney support basket of sheet metal, reinforced with heavy iron supporting straps, is set into a prepared opening between the ceiling joists. The edges of the basket and the ends of the iron supporting straps are nailed to the joists. The chimney bottom is then placed inside the basket. This bottom is an insulating pad made of vermiculite concrete. An opening in this pad permits the installation of a stainless steel thimble which projects below the support basket and accommodates the connection from the flue of the heating unit.

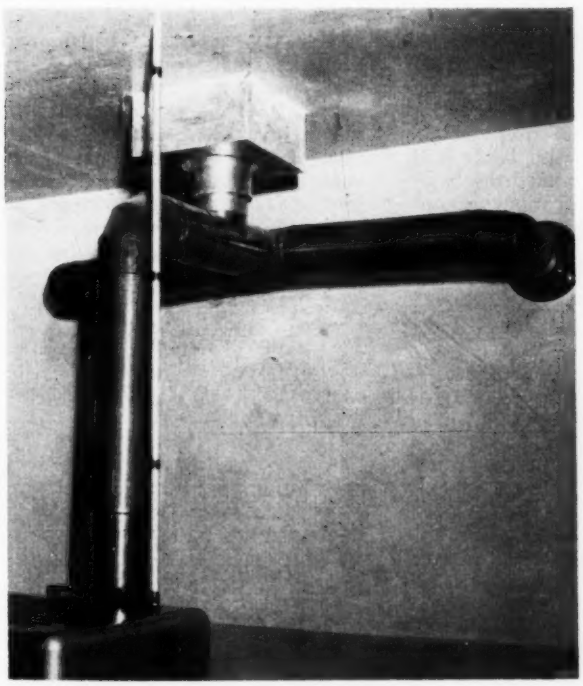
Following the installation of the supporting basket and insulating pad, the first chimney section is cemented to the pad with acidproof, leakproof, thermal setting joint cement. Additional sections are then applied until the desired height has been reached. These are cemented in place and secured with aluminum draw bands around the joints.

These chimney sections, supplied in 1 or 2-ft lengths, have a flue opening 7 in. in diameter with a 14¾-in. outside diameter. They are fabricated with an inner fire-clay tile lining ⅝ in in thickness. This tile lining is enclosed in a vermiculite concrete wall approximately 3 in. thick, which is further enclosed in an outer asbestos-cement jacket approximately ⅜ in. thick.

At the point where the chimney passes through the roof, an aluminum flashing plate is provided, together with a rectangular chimney housing which covers the above-the-roof portion of the chimney. This housing is trimmed and flanged to fit the pitch of the roof. An aluminum cap is placed over the housing and secured to it with sheet-metal screws. A chimney pot of fire clay is cemented over the housing cap, and a refractory-clay rain cap is added to complete the installation.

Tests conducted by the Underwriters Laboratories are reported to have established that the chimney sections will withstand temperatures in excess of 2000 deg F. The sections have been approved for use with coal, oil and gas.

The construction of these two buildings was under the direction of B. R. Meyers, chief engineer. They were designed by W. F. Armstrong, architectural engineer, and constructed by railway company forces. The chimneys were furnished complete by the Van-Packer Corporation, Chicago.



SPACE HEATER flues are connected to the stainless steel thimble to complete the installation.

CAR DEPARTMENT building at Waukegan, Ill. where prefabricated chimney installation vents oil-fired space heaters.

Committee's Suggestions for Training Procedure

1. Operators should be permitted to assist in the shop repairs to machines, and those operators showing mechanical aptitude should be selected for training as shop mechanics. After attaining sufficient skill in repairing the equipment in the shop they should be further advanced to field work-equipment mechanics or maintainers.

2. Where helpers are advanced they should be selected on the basis of ability and trained on a definite schedule, allowing sufficient learning time on the various types of equipment so that they will be able to make complete repairs to machines. They can then be advanced to shop mechanics and further advanced to field mechanics. Along this same line, helpers can be trained in the field by working with experienced maintainers.

3. Endeavor should be made to secure mechanics who have had some experience in garages, or in the work-equipment shops of contractors or others using work equipment. These mechanics should be given specialized training on maintenance-of-way work equipment before being advanced to field mechanic.

4. Where mechanical department shop mechanics transfer to the maintenance-of-way department, such mechanics should be placed on a definite shop training schedule so that they will be able to make complete repairs to machines, following which they can be advanced to the position of field mechanic.

For Better Maintenance of Machines . . .

AREA Committee* Recommends:

- **Manufacturers' Schools for M/W Mechanics**
- **Shop Training for Machine Operators**
- **Training of Helpers on Definite Schedule**
- **Selection of Mechanics Based on Aptitude**

● A review of current practices in general use on various railroads in the maintenance of equipment used in maintenance of way work, when compared with the principles set forth and recommended in publications of the AREA, offers only one conclusion—that their adoption has been far from universal.

Originally the field mechanic in most instances was merely a "handy man" who had some natural mechanical aptitude and who could make running repairs to motor cars and the steam-operated cranes, shovels and pile drivers which were about all the work equipment in use a few years ago. The time is long past that such a "handy man" can maintain the many complicated and expensive machines in use on the railroads today. It is imperative that some definite method of training both field and shop work-equipment mechanics be placed in effect.

Because of the fact that maintenance of way labor costs have increased in the past 15 years and the 5-day week has been established, there has been a marked trend on the part of management to greater mechanization through the purchase of more and more work equipment. Too often during this same period the work equipment organization has remained static in the face of this great increase in the amount of work equipment.

Basically, it can be stated that a road work equipment mechanic is the better for some prior shop training, and a shop mechanic is the better if he has had some practical training in how the equipment he repairs is used in the field. Both classes of mechanic need the benefit of occasional educational schooling by trained manufacturers' servicemen.

Diesel locomotive maintainers and supervisors are sent to factory schools as standard practice. We feel that the manufacturers of railroad maintenance of way work equipment should provide more and better schools, properly supervised and conducted by trained service supervisors. The policies of manufacturers in these respects vary in that some hold no schools; some have loosely knit and loosely conducted schools, the benefits of which may be questionable; and only a few have well organized and well-conducted schools. Where factory schools are not practicable, the manufacturer should send an experienced and qualified representative to conduct schools at certain centrally located points designated by the railroad. We feel that railroad management should support the schools and have their work equipment mechanics and supervisors attend them.

Preventive Maintenance Needed

Your committee further feels that, in general, and particularly with respect to the smaller units of work equipment, there has been too great a tendency in recent years for machine operators and their superiors to let the service and maintenance go to the point of breakdown and gang disruption, calling instead on the field work-equipment mechanic for work the operator should attend to, and which their working rules and schedules may stipulate is to be done by the operator. The field mechanic is thus overburdened with inconsequential service calls which make demands on his time and prevent him from attending to more important work. Roadmasters and supervisors should recognize that they are not only responsible for the progress of work, but are equally responsible for maintenance of the equipment in their charge.

The method of selecting and training work-equipment mechanics must of necessity vary with the working agreements in effect on the various railroads. (At this point the committee made recommendations for a training procedure which can be varied to suit conditions on each railroad in accordance with working agreements. These recommendations are shown elsewhere on this page.)

The size of the territory the field mechanic is to cover and the size of the shop will be determined by a number of factors that the individual railroads can best weigh.

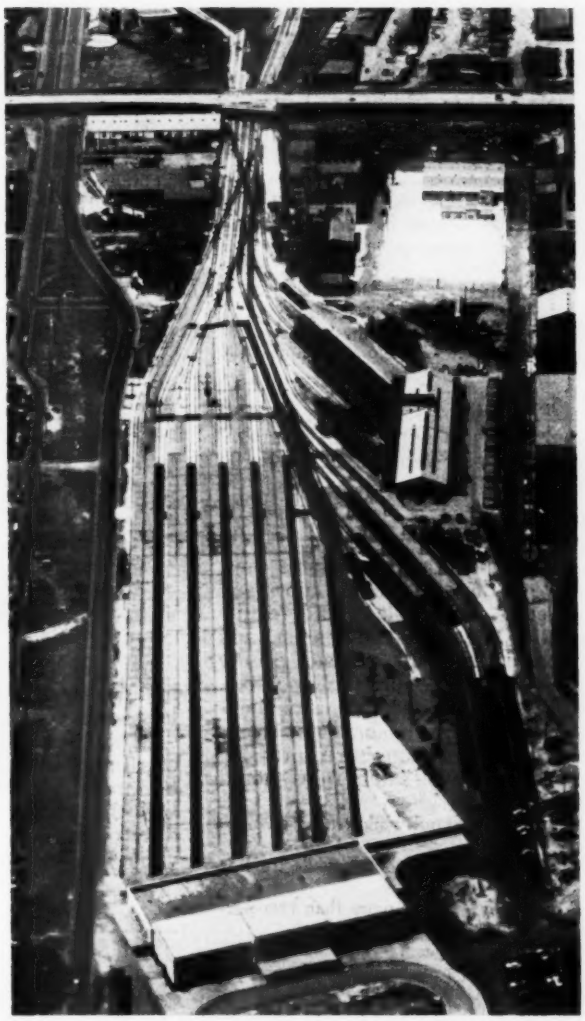
*This is a report of a subcommittee of the AREA Committee on Maintenance of Way Work Equipment, which was presented at the recent annual meeting. S. H. Knight, supervisor work equipment, Northern Pacific, St. Paul, Minn., was chairman of the subcommittee.

FUNCTIONAL DESIGN features the new station. All public facilities are on the first floor; offices second floor.

EFFICIENT ARRANGEMENT and colorful finish materials feature station interior. Shown here is waiting concourse.

News Briefs in Pictures . . .

DEDICATION of a unified railroad passenger terminal occurred at New Orleans on May 1. Construction of the new station permitted five existing railroad depots to be abandoned. Integral with the station project is a large-scale grade-crossing elimination program involving the construction of 27 underpasses and overpasses. Total cost about $56,000,000. Below is an aerial view of the station and trainshed. Mail-car tracks and express facilities are at right.



ONE OF MANY grade-separation structures being built at New Orleans is shown here. The structures, carrying Palmetto street, extend over a highway and tracks of new passenger terminal and help relieve traffic congestion.

WHAT'S THE ANSWER?...

. . . a forum on track, bridge, building and water service problems

Safety With Highway Trucks

When transporting laborers by highway trucks, what safety precautions should be taken? On whom should the responsibility rest for their safety? Explain.

Foreman's Responsibility

By W. M. S. Dunn
General Roadmaster,
New York, Chicago & St. Louis,
Bellevue, Ohio

The general safety rules of most railroads are applicable to operation of motor vehicles, namely:

(1) Safety is of first importance in the discharge of duty.
(2) Obedience to instructions is essential for safety.

The operator of a vehicle must have a driver's license, know and obey the driving laws and regulations of the federal government and those of the state, city and county in which the vehicle is operated. All credentials necessary for the operation of vehicle should be available for inspection as required.

The following safety rules should be enforced:

1. Do not stand while truck is in motion.
2. Do not get on or off while truck is in motion.
3. Do not permit more than two persons in driver's seat.
4. Do not speed.
5. Do not permit throwing of materials or tools from moving vehicles.
6. Do not allow open flames, smoking, etc., when handling gasoline.
7. Do not allow improper seating.
8. Do not place arms and legs over the side or end of the vehicle while it is in motion.

In general, on our railroad there are four types of vehicles used for transporting men on highways. These include: Buses, seating 35 to 50 men, having front and rear exits; 12-ft stake-body trucks fully covered, seating 15 to 20 men, having rear exit with steps; utility-type trucks, seating 3 people in driver's cab and 5 people in the cab, having exit door on side; and ½ to ¾-ton trucks used by signal, water supply and B&B maintainers, which have standard driver's cab.

In all cases the responsibility for the safety of the men rests on the foreman or other man in charge. The responsibility for the safe operation of the vehicle rests with the foreman or his delegated operator who must be governed, at all times, by the safety requirements of his railroad, and by federal, state and local laws.

Cooperation Important

By C. T. Blume
General Supervisor Work Equipment
St. Louis-San Francisco,
Springfield, Mo.

The transportation of laborers by highway truck presents safety problems and responsibilities that are dual in their nature. Achievement of safety necessitates the collaboration of the railway management and the employees. The primary duty of management rests in providing the proper type truck and arranging for education of personnel.

The truck must be a personnel transporter. It may also be referred to as a crew carrier. A service-type truck should never be used in transporting personnel, unless it is a modified unit of a combination service and personnel-transporter type. The truck body should be equipped with adequate seating to accommodate the laborers, and standing in the truck while in motion should not be permitted.

Safety equipment, as may be applicable in respect to the chassis and cab or truck body, is essential and may include the following: Directional signals, overhead safety railing in truck body, escape hatch located in the top of truck body, doors (if used) that will not seize and prevent ready exit, driver signalling device between the chassis cab and truck body if there is a separation by a partition, ample ventilation, approved fire extinguisher, first-aid kit of sufficient size for the number of employees carried and other similar appliances. Loose tools must not be transported in the truck body with the laborers.

Answers to the following questions are solicited from readers. They should be addressed to the What's the Answer editor, Railway Track and Structures, 79 W. Monroe St., Chicago 3, and reach him at least five (5) weeks in advance of the publication date (the first of the month) of the issue in which they are to appear. An honorarium will be given for each published answer on the basis of its substance and length. Answers will appear with or without the name and title of the author, as may be requested. The editor will also welcome any questions which you may wish to have discussed.

To Be Answered In the August Issue

1. To what extent should ballasting operations be protected by slow order? If required, how long should slow orders remain in effect? Explain.

2. What is the most practical method of replacing glass blocks that have been broken? Explain.

3. To what extent should roadmasters and bridge and building supervisors be held responsible for the proper maintenance of M/W work equipment used by forces under their supervision? Explain.

4. To what extent does "good housekeeping" in connection with steel bridges affect their maintenance requirements? Explain.

5. What factors determine the necessity and/or frequency of patrolling track? Explain.

6. What are the most effective methods for the anchoring of fuel-oil tanks to prevent their being floated away during floods? Explain.

Sturdy tool compartments that can be readily closed and secured are a safety feature that cannot be ignored. The truck must meet weight, dimensional and marking requirements for the states in which it operates.

Equally important is the responsibility of the management in personnel education. The management should be assured the driver is physically sound and properly licensed to operate the truck. The driver should be furnished a copy of the vehicle traffic regulations with latest supplements, including other pertinent information applicable to his assigned duties. If a specific state issues the driver a license without a thorough examination, I am of the opinion the management should assume the responsibility of seeing that he is properly qualified. Periodical physical and operating examinations of the driver by the management are a requisite, as the safety of the laborers is involved. The laborers transported by truck must also realize their responsibilities.

The railway rules governing vehicle care and operation must be concise and not conflict with municipal ordinances or state laws. Extreme care in the issuance of such rules and instructions should accordingly be exercised. Routine field contacts between the truck driver and a qualified supervisor are very important in maintaining the desired standards of safe track operation.

Objectionable Interior Reflections

The large glass windows in control and interlocking towers are frequently tilted in at the bottom to reduce the glare from outside objects. What can be done to eliminate the objectionable interior reflections present when the interior lights are turned on at night? Explain.

Complex Problem

By W. G. Harding
Architect, Wabash,
St. Louis, Mo.

The elimination of objectionable interior reflections on "tilted-in" windows in control and interlocking towers is a complex problem as it is practically impossible to control the angles of incidence and reflection for any given position. The simplest solution would be to eliminate interior lighting entirely. This, however, is not possible.

Other suggested solutions include the use of cove or indirect lighting to minimize brightness contrast; avoiding the use of colors of high light reflectivity on unglazed portions of the room; the use of subdued lighting in the operator's work area; and the illumination of the surrounding terrain.

I have visited several towers lately and also made some experiments at home which reveal that the windows act like a mirror if it is dark outside and it is extremely hard to see through them when you are in an illuminated room.

Cropping Relay Rail

What advantages are there in cropping relay rail? Disadvantages? Explain.

Reduces Joint Maintenance

By R. L. Groover
Chief Engineer, Atlantic Coast Line,
Wilmington, N. C.

We began cropping rail very extensively in 1946 and since that date we have placed in secondary main lines and running tracks about 640 track miles of cropped rail, principally 100-lb. section. This cropped rail is proving very satisfactory.

During the depression period, prior to World War II, laying new rail was greatly curtailed by unfavorable financial conditions. During the war period, and thereafter, the delivery of new rail was far less than our requirements. We therefore left in first position a considerable quantity of rail that would otherwise have been removed before rail end batter and wear had progressed so extensively. We have found, when removing this rail from first position, that a large quantity of it, by reason of end batter, web and base wear, and defects in the bolt holes, was not suitable for reuse on secondary main lines or in running tracks. Furthermore, we found that it was necessary to scrap a considerable portion of this rail.

We found, however, that cropping would make the rail suitable for secondary main line use. In cropping we were also able to reclaim many rails in shorter lengths, which would otherwise have been scrapped. After cropping, we laid this rail in second position, with new or reformed angle bars. The riding quality of the track where this cropped rail was laid was almost equivalent to that of new rail. Further, considerable joint maintenance has been eliminated with the redrilling of the cropped rail and elimination of the original worn angle-bar areas. The advantages we have obtained from cropping rail have been so pronounced that we are continuing the cropping of all rail released from first position for relay in secondary main lines or principle running tracks.

Controversial Subject

By L. R. Lamport
Chief Engineer—Maintenance,
Chicago & North Western, Chicago

The cropping of relay rail is a controversial subject, and one which depends primarily on economics. Cropped rail ordinarily has the advantage of better joint-bar fit and elimination of batter. Cropping also gets rid of that portion of the rail which may contain bolt-hole cracks and cracks in the upper fillet which will eventually cause head-and-web separations at the rail end. These defects may otherwise not be noted in a casual inspection by track forces.

The disadvantage of cropping rail are: First, the loss of two to three feet of rail which many roads do not like to lose to the scrap pile; and second, the time required for handling in and out of the cropping mill.

If rail is not permitted to go too long before removal, and has previously been jointed with head-contact bars, a satisfactory joint can

be had through the use of head-free bars which will have a new contact surface in the upper fillet. Some building up of batter will be required if the rail is not cropped, but the cost of building up will be offset by the additional amount of rail available for relay and the elimination of the cropping and handling cost. Further, cropped rail requires a certain amount of matching to get a satisfactory running surface due to uneven rail wear.

The trend today is toward keeping the number of joints to a minimum. With this in mind the cropping of rail should, in my opinion, be avoided if possible.

Flange Lubricators for Diesels

Does the use of diesel locomotives increase the need for rail and flange lubricators? Why? Explain.

Diesel Trucks More Rigid

By G. A. Phillips
Chief Engineer,
Delaware, Lackawanna & Western,
Hoboken, N. J.

It is my opinion that we have certainly experienced more curve wear on the high or outside rail on curves since the use of diesel locomotives than we did during the steam age. I think this is definitely due to the fact that the center of gravity of a diesel locomotive is somewhat lower than that of a steam locomotive, combined with the fact that the wheel loads of a diesel engine with a 42-in wheel closely approach the axle loads of a steam locomotive with a 79-in wheel.

In addition diesel trucks have a tendency to be more rigid and cut into the rail as compared to a steam locomotive. A steam locomotive is equipped with an engine truck with an axle load of at least half the weight on the axle of a diesel locomotive in advance of the main drivers.

All of these features help to produce additional curve wear on the high side of the curves.

Diesels Increase Rail Wear

By L. F. Racine
Chief Engineer,
Chicago, Indianapolis & Louisville,
Lafayette, Ind.

Indications are that diesel locomotives wear the high rail on curves more than steam locomotives. This is perhaps due to the traction motors assisting the centrifugal force in placing the diesel locomotive wheels tightly against the high rail, especially where train speeds are at the maximum restriction for such curves.

Many curves two degrees and over laid with new 115-lb rail and restricted as to speed, according to degree of curvature, show considerable wear soon after new rail is installed. Steam locomotives did not wear the high rail as rapidly on these curves.

Rail and flange lubricators, as I see it, are very necessary for the protection of rail when diesel locomotives are in use. The proper location for these lubricators depends upon a number of factors. These include the degree and length of each curve, train speed, superelevation and grade. They must effectively provide adequate and continous lubrication to the outer rail on curves.

Repairing Underground Water Mains

What is the best procedure for repairing a broken or leaking underground water main? Explain.

Conditions Determine Methods

By E. M. Enger
Supervisor Bridges & Buildings,
Chicago, St. Paul, Minneapolis & Omaha
St. Paul, Minn.

There are so many types of pipe, local conditions and individual problems involved in each leak that there is hardly any given method that will apply under all conditions. It is assumed that the problem deals with larger water mains serving several leads rather than an individual lead.

In this section of the country most of the water mains are of cast iron pipe. This is due to the depth at which water pipe must be installed to prevent freezing. Excavation costs, therefore, become a major factor both in considering the service life of the main before renewal is necessary and the service life expectancy before appreciable leakage from pipe failure might occur. This is exclusive of outside damage such as that caused by ground shifting or surface loading.

In the case of cast iron pipe, it is important that steps be taken to properly shore and dry out the excavation so that new lead joints can be run without the danger of lead explosions which occur when molten lead is run into water or wet joints. If the break is of any consequence and the main can be shut down long enough to make adequate repairs, we feel that the most satisfactory procedure consists of removing the broken portion of pipe to the nearest joint and replacing that section, using a pipe sleeve and a new section of pipe. This section is cut to a length which will fit the space from which the broken pipe is removed. This method, of course, requires the running of three lead joints; however, when it is done the repaired section is as permanent as the remainder of the line.

In leaks where it is found that the break is not too extensive and the line must be returned to service as quickly as possible, we have made entirely satisfactory repairs with a bolted split sleeve which fits around the pipe and seals off the leak by clamping rubber gaskets against the pipe. This repair can be made without entirely emptying the main and with very little interruption to water service.

We have found upon investigation in many instances where smaller leaks occur in cast iron water mains that the leak is in the lead joint. This can be caused by any one of several conditions, such as improperly run joints at the time of original installation and settlement of unstable ground which causes the joints to cant. The remedy for this type of leak is comparatively simple. It consists of removing the old lead from the joint and removing as much of the old packing as is conveniently possible. The joint is then repacked with

jute or hemp packing and a new lead joint is run. It must also be remembered in this type of repair that the joint must be dry when the lead is run to preclude blow backs.

On our own property we have many mains of either steel or wrought iron pipe. The service life of this pipe is considerably less than that of cast iron pipe due to its susceptibility to corrosion both internally and externally. For this reason the great preponderance of our leaks occur in this class of pipe. The repair of steel and wrought iron pipe is made almost exclusively by our forces by welding, except in cases where it is necessary to renew entire lengths of pipe. This has proven to be both a fast and satisfactory method of repairing this type of leak.

Shore Wet Excavation

By G. E. Martin
Superintendent Water Service,
Illinois Central, Chicago

When a water leak appears on the surface it is necessary to excavate an area, sufficient in size, to make it accessible for inspection and repairs. The type of pipe and amount of leakage is frequently sufficient evidence to permit an experienced repairman to reach a conclusion as to the type of leak, before the pipe is completely uncovered. The depth of bury and type of leak have considerable bearing on the area to be excavated. Frequently too small an excavation is made to successfully repair leaks. It is not uncommon to protect the excavation with sheeting to prevent caving during repairs.

The type and extent of leakage determine whether water can be kept out of the excavation by pumping or cutting off the water to remove pressure from the line to be repaired, while repairs are in progress. Cast iron pipe with lead joints is commonly used for water mains. Leaks that develop in these joints can usually be repaired by recaulking. Defective joints that might require renewal of sections of pipe can frequently be satisfactorily repaired by the application of a joint clamp with a rubber gasket. Many troublesome leaky joints have been corrected quite satisfactorily with the use of such clamps.

If it is necessary to renew a section of pipe for any cause, this can generally be satisfactorily accomplished, on any type pipe, by cutting the last joint of pipe into two pieces, and inserting and using a sleeve for the final coupling. Sleeves requiring a poured joint have been used for years, but more recently mechanical joint sleeves have been introduced and now are frequently used. These are generally preferred because of the ease of closing the final opening.

There are so many kinds and types of pipes used for water mains that it is most desirable to have experienced water-service repairmen make repairs in order to secure satisfactory results at a reasonable cost and with a minimum of out-of-service time.

Locate Leak First

By H. M. Dick
Supervisor of Structures,
Pennsylvania, Harrisburg, Pa.

The first thing to do is to locate the leak. If it does not show up above ground, it will be necessary to probe and use a listening device to find where the leak is located. One method is to drive a steel bar down on top of the water main. After locating the main, tap lightly and listen for the sound of running water. Another method is the Sound Scope leak detector. This device is used to best advantage where noises of other sources are not prevalent.

After the leak has been located excavation is started. Extreme care in digging should be stressed when the depth of the pipe or main is greater than four feet. Below this depth it will be necessary to shore the excavation to eliminate the chance of cave-ins. If by chance the leak is under railroad tracks, they should be supported while excavation and repairs are being made. After locating the leak, suppose it is determined that the joint has blown and there is sufficient lead remaining to recaulk the joint. This should be done using a standard caulking tool. After the lead has all been driven back in place the use of a mechanical bell-joint clamp is recommended. This mechanical joint is used to reinforce the joint under the load of moving traffic, particularly where the line or main is located under the rail joints.

In instances where the break in the line or main is circumferential, longitudinal or from deterioration of the metal due to electrolysis, the use of a mechanical split-sleeve repair is recommended. In using this type of sleeve, service can be maintained while the repairs are being carried out. Sleeves can be installed in a wet ditch or under any weather conditions thus eliminating additional help which is required when hemping or pouring molten metal joints.

When pipe is entirely deteriorated for two or three feet or a longitudinal break is of too great a length to be repaired by a sleeve, excavation should be enlarged to locate the bell. The lead is melted out of the joint and the pipe is cut in order to remove the section to be renewed. After determining the length of the pipe necessary for renewal, it can be put in place by inserting the repair section of pipe in the bell end and applying a solid pipe sleeve to the other end. After placing the pipe, joints are hemped and then are poured with lead or leadite.

Portable Pump a Valuable Tool

By J. M. Short
General Water Service Inspector,
Texas & Pacific, Dallas, Tex.

In our experience a break or leak seldom occurs where the natural drainage is sufficient to take care of all waste water, and for this reason we have found it advisable to have a lightweight portable pump available at all times for emergency use in disposing of waste water. In figuring the size and capacity of a pump, I think it should be taken into consideration that the average cut-off valve is not used often and frequently fails to stop the flow of water when closed.

If the joints have been made with a pig-lead recaulk joint, all that is needed in making repairs is to put on a good bell-joint clamp. About ninety-five per cent of cement and compound joints can be repaired with bell-joint clamp.

The type of break usually determines the type of repairs one will have to make. Where there are no paving, buildings, or tracks we usually remove the broken joints of pipe. This can be done by removing joint material and bucking out two joints. If you have a truck with a winch available, this can be done in a very short time. In close places we simply cut out the failed section of pipe and make repairs by the use of a short piece of pipe and sleeves, either the slip or split type. We prefer the split sleeve and improved packing for dry joints.

Supersonic Scour Investigations

Are supersonic sounding devices adaptable to investigations of scour at bridge piers and abutments? What types of equipment are most effective for this purpose? Explain.

Provide Most Accurate Method

By E. H. Daves, Jr.
Assistant Engineer, Missouri Pacific,
St. Louis, Mo.

Supersonic, or echo, sounding devices are the most accurate and in many instances the only means of measuring underwater depths.

Our experience with supersonic sounding devices has occurred on streams that include the Arkansas, Atchafalaya and Mississippi rivers, where maximum depths will range well over 100 ft and current velocities will exceed 15 ft per second. Turbulence in these rivers during high stages and run-outs is violent, especially downstream of bridge piers or any obstruction, where maximum scour is taking place. Depths can be taken at these critical points at frequent intervals or the equipment may be held stationary and a continuous recording of any change in the streambed may be made.

To have a proper appreciation of the ease and accuracy of supersonic soundings compared to other methods of obtaining underwater depths, one should have some idea of sounding with hand lines and sounding wheels.

Hand or lead-line soundings are taken with a line consisting of a braided cord over a bronze wire core. Such a line will not stretch from the weight of the sounding leads and will not shrink when wetted. The leads-man heaves or casts the lead up stream from a bridge pier or sounding boat, so that he will be able to plumb the sounding line in a vertical position as it is swept past by the current. This procedure is simple to write about but when you get out on a bridge pier or sounding boat and try to do it, with depths over 50 ft and high velocities, you find it a different story.

With the sounding-wheel method a calibrated wheel carries the fine sounding wire with lead attached. The sounding wheel is geared to a graduated dial that indicates underwater depths. A more accurate determination of underwater depths can be made by this method, due to less drag by the current on the fine sounding wire and the greater weight of the sounding leads. When depths are taken with sounding wheels the boat is brought up stream of the range or point where a depth is to be measured. This distance is dependent on depth and velocity. The lead is let go, the boat is stopped and either backs or drifts down stream over the range or point.

Supersonic or echo soundings are based on the fact that sound travels approximately 4800 ft per second in water, with this speed varying slightly due to temperature and salinity. In this method a sound pressure wave is projected to the streambed by a transmitting oscillator. This pressure wave or its echo is reflected back from the streambed to a receiving oscillator. The echo is there converted to electronic impulses that are recorded on a calibrated paper chart by the arc-discharge method, making a permanent record.

Supersonic sounding equipment consists of two units with their electrical connections: The recorder that contains the chart mechanism, keying switches, etc., which time the electronic impulses, together with the electronic circuit that transmits and converts the reflected waves or echo; and the sending and receiving oscillators, known as the "fish" which are housed in either a wood or aluminum case. The "fish" is carried over the side of the sounding boat and submerged below the water surface at various depths. Soundings with supersonic equipment are made at the rate of approximately 300 per minute, which provides a continuous profile of the stream bed.

After the recorder and oscillators have been connected, the "fish" containing the sending and receiving oscillators is placed over side at the desired depth below the water surface. This depth is compensated for in the recorder to give the true depth on the chart.

To operate the equipment efficiently three men are required—the recorder operator and his assistant, and a "fish-tender" who clears drift from the oscillators and then raises them when coming into shoal water, where the bottom might foul or damage them. Besides the three men operating the sounding equipment, a motorboat operator and deckhand complete the sounding party. The same number of men would be required with sounding-wheel methods. When soundings are taken with a hand line the party could be reduced to three men; however the time required would equal the cost of supersonic soundings, without taking into consideration the great difference in accuracy.

Personnel with ordinary intelligence can be trained to operate supersonic depth recorders in a few weeks time. It is advisable, however, to use personnel that have experience with survey and other instruments used in engineering work as operators. Operators do not have to be mechanical or radio experts and it is preferable they are neither. With the exception of minor adjustments and the replacing of vacuum tubes little else is required in the operation of this equipment. Major repairs and adjustments should be made by trained mechanics and radio repairmen.

The type of equipment now in use on the Missouri Pacific, and which I believe to be the most practicable for railroad use, is a portable permanent chart recorder. These instruments can be transported from job to job as required. The oscillator may be shipped as railroad material in baggage cars, although this is not recommended. The recorder should be transported by truck or automobile, well cushioned to prevent excessive jarring. If a truck or automobile is not available, the recorder should be transported in a passenger or Pullman car.

To my knowledge there are three makes of supersonic depth recorders made in this country. All operate on the same principle based on the velocity of sound in water and give very accurate results. Portable supersonic depth equipment is of two types, the recording and nonrecording. In the nonrecording type, depths are shown on a dial by a hand or needle similar to that of a speedometer on an automobile. With the portable recording type of supersonic equipment, depths are marked on calibrated chart paper as a permanent record. The permanent-record type of recorder is the most efficient and practicable for railroad use, as periodic soundings can be accurately compared from the chart paper before being scaled and plotted.

In the past five years we have learned much about the use and operation of supersonic sounding equipment, and believe this method of sounding is indispensable when deep scour is taking place around bridge piers and abutments.

"... Very Satisfactory ... A Nice Saving"

Roy H. Gilkey, Division Engineer of Central of Georgia Railway Company, is a past President of the Roadmasters' and Maintenance of Way Association of America.

Form 204

CENTRAL OF GEORGIA RAILWAY COMPANY

Savannah, Georgia-m
March 4, 1954
Lubricators

Mr. H. T. Armstrong, Manager,
Railroad Sales,
H. T. Kennedy Company, Inc.,
37 Wall Street,
New York 5, New York.

Dear Holly:-

We installed the Aladdin Rail and Wheel Flange Lubricator at Millen, Georgia, during April 1953. This lubricator was installed on a busy lead and has proved very satisfactory, carrying grease each way through switch points and over frogs.

One of the fine features is that no wheels make contact with any part of the lubricator. This lubricator can be installed very easily by one man, and will fit all types of rail. Another good feature is that the grease is carried along the side of the rail head and not deposited on the top of the rail. It has shown a nice saving on the wear of switch points and frogs.

Care must be taken to see that the correct grease is used, and that the lubricator is kept clean and in adjustment at all times.

Sincerely yours,
R H Gilkey.
Roy H. Gilkey,
Division Engineer.

The Central of Georgia Railway Company is still another important railroad now using the

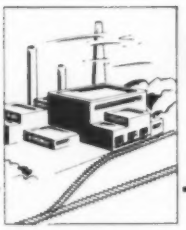
ALADDIN LUBRICATOR

Experienced railroad men value its economy, convenience and simplicity.

The ALADDIN Lubricator is a self-contained valveless *grease* pump. It fits any rail — cuts maintenance on curves, frogs and switches.

Order an ALADDIN Lubricator for *your* road. Try it. Test it and you will join the increasing number of railroads adopting the ALADDIN as standard equipment. Only $178.00 delivered.

H. T. KENNEDY COMPANY, INC., 37 Wall St., New York 5, N.Y.



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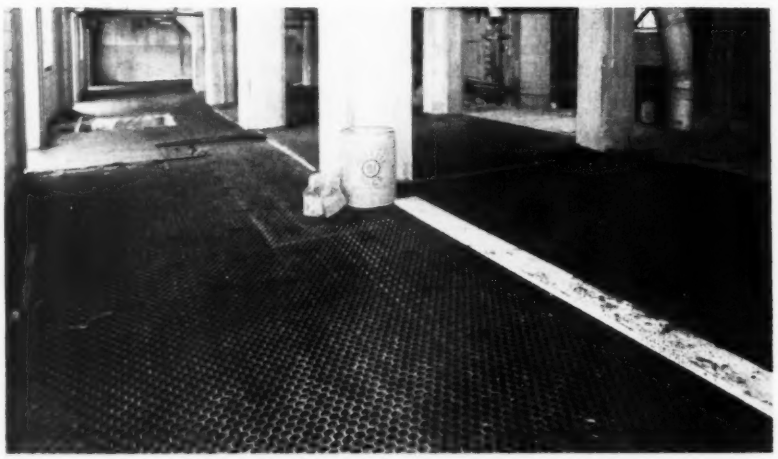
STEEL-REINFORCED FLOORING UNIT

COMBINING a heavy steel mesh and special filler to form a complete "packaged-unit" heavy-duty flooring, United Laboratories, Inc., Cleveland, Ohio, have recently made available "Steel-Rock," for surfacing floors subjected to extra-tough abuse. Claimed by the manufacturer to out-live the building itself, this flooring is said to meet the rugged requirements of modern industrial production and materials handling problems.

The prime advantages of "Steel-Rock" are claimed to be its ability to withstand impact as well as heavy loads and remain maintenance-free for years to come. The resilient filler used in the grid compacts to meet the level of the steel ribs thereby permitting the wheels to ride on steel without the noise and slipperiness of a solid steel surface. The product may be applied over new or old surfaces of wood or concrete, inside or outside, at a depth varying from ¾ to 1 in. depending upon job requirements.



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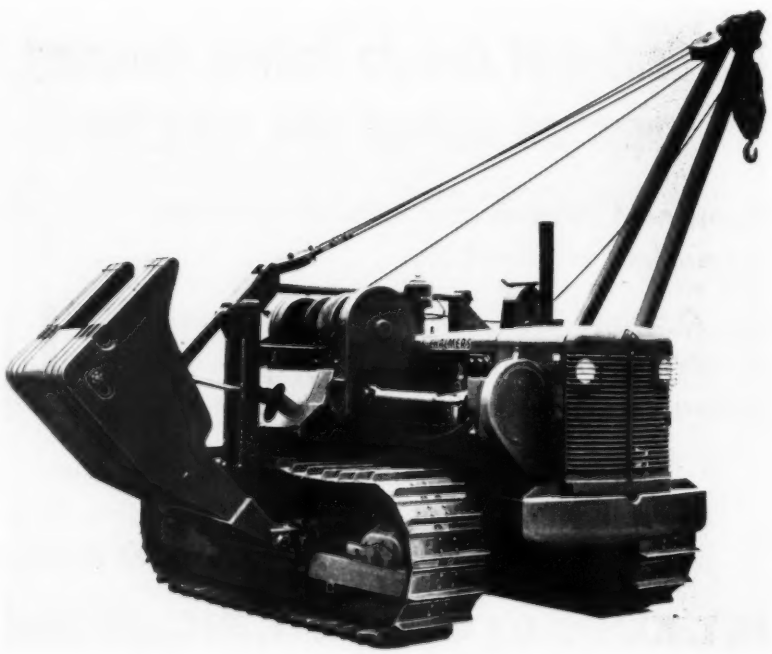
NEW SIDE BOOM FOR CRAWLER TRACTORS

A NEW SIDE boom for crawler tractors with a 38,000-lb lifting capacity at 4 ft overhang has been announced by the Tractomotive Corporation, Deerfield, Ill. Known as the Model TSB-9, the boom is

(*Continued on page* 66)



UP AND OVER! *With oversize tires and power steering Gradall goes anywhere—right over tracks, over rough terrain.*

WORKS RIGHT FROM THE ROADBED. *New Railroad Gradall gives you maintenance-of-way for every mile of track. Eliminates need for a work train. This new Gradall also makes an excellent emergency unit.*

FOR OFF-TRACK MAINTENANCE—*even in rough terrain. Gradall's 24-foot telescoping boom can be extended to 36 feet with boom extension* to reach hard-to-get-at work. Remote control* of undercarriage speeds spotting of the machine—affords one-man operation.*

*Optional equipment.

All along the line...

New Railroad Gradall cuts your maintenance costs

DESIGNED especially for railroads—with oversize track-climbing tires, power steering, extra-rigid H-beam frame—the new railroad Gradall has already proved itself a money-saver on many different railroad jobs.

Gradall works over *every mile* of your track—traveling right on the roadbed, or by highway from one point to another. Its compact size and hydraulic, telescoping boom permit working in (and out of) cramped quarters inaccessible to other machines. Gradall works fast and with its *arm-action* accuracy to cut costs and eliminate hand labor on all kinds of jobs—ranging from cleaning tracks, placing rails, ripping pavement, maintaining ditches, to all conventional earth-moving and grading jobs. It carries its own quickly interchangeable attachments for any job ahead—often eliminates need for a work train.

You'll find this new railroad Gradall really pays off! It's always busy—saves money on all kinds of maintenance and construction work. We'll be glad to arrange a field demonstration on your work. Write: The Warner & Swasey Co., Gradall Division, Cleveland 3, Ohio.

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PRECISION MACHINERY SINCE 1880

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YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

designed for mounting on the Allis-Chalmers HD-9F tractor, and joins its two larger companion machines already in the field, the TSB-15 and TSB-20 side booms. It is expected that many uses will be made of the attachment where sewer tile, conduit and water mains are being laid, and on many other jobs requiring big-capacity, mobile lifting power.

Among many design improvements, the manufacturer has introduced two major features in this unit which are new. The first is a front-mounted power take-off which, it is claimed, has several advantages. It means the power is taken from a live shaft so that the side boom works independently of the tractor master clutch. Further, the front power take-off leaves the back of the tractor free for installation of a winch or other rear-mounted equipment.

The second new feature of the TSB-9 is the twin clutch arrangement on the power take-off. This arrangement consists of two multiple-plate twin-disc clutches, one for raising and one for lowering. By merely pulling one lever, the operator can change from "raise" through "neutral" to "power down" on either the load or boom line. No gear shifting is necessary. This, it is stated, results in safer operation in that the operator does not have to shift gears to change from raise to power lower, and means that he can act quickly in an emergency.

The TSB-9 has a counterweight of 6500 lbs which may be extended and retracted hydraulically with drop-proof counterweight linkage as standard equipment. Internal expanding brakes on the load line and boom line comprises another important feature. These brakes are completely enclosed for full protection from dirt and moisture. The boom is a box-beam section, 15 ft long, which pivots on replaceable, hardened pins and bushings, and is spread wide at the top for ample sheave block clearance. An automatic clutch throw-out prevents bending of the boom against the stops. The sectional frame members are pin connected for fast installation and easy removal for shipping or tractor servicing. The total width with outer frame members removed is 8 ft 2 in, which facilitates highway and rail shipping.

Self-Contained • Portable

SYNTRON HAMMERS

. . . pack plenty of power for fast, low cost construction and maintenance

Syntron Hammers help reduce time and job costs because they are self-contained units — require no auxiliary equipment — easily portable over rough terrain or on right-of-way projects where bulky equipment is impractical.

GASOLINE HAMMER ROCK DRILLS and BREAKERS

Deliver 2000 powerful blows per minute for high speed drilling of up to 2" dia. holes in rock. Drill Models feature exclusive automatic rotation of bit. Breaker Models with plenty of impact for digging, cutting, busting or tamping. These same powerful Syntron Gasoline Hammers are also available as Spike Drivers.

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Complete units — require no auxiliary power equipment. Develop 4300 to 16000 ft. lb. blows for low or high frictional resistance. Easily set up with mobile crane for driving concrete, steel or wooden piles.

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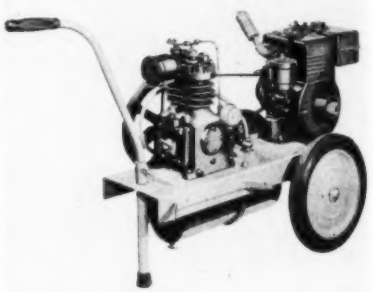
PORTABLE AIR COMPRESSORS

A COMPLETELY NEW line of portable air compressors available with either electric or gasoline-driven power in a variety of models



is being introduced by the DeVilbiss Company, Toledo, Ohio.

Designed expressly for spray painting is a 1-hp model, rated at 60 psi maximum and delivering 5.4 cfm of air. For general utility work, DeVilbiss has engineered a

(*Continued on page* 68)

Putting Secondhand Rail to Work...

Handling rail from cars to ties in foreground in a program for 112 miles of yard track by the Pennsylvania Railroad at Conway, Pa.

You don't need *new* steel to produce cost-cutting continuous rail. In 1952, 30 per cent of the welds made with RIBBONRAIL service were in secondhand rails.

HERE'S WHY...

Used rail lasts longer when it becomes continuous rail—no ends to batter, no joints to wear—practically eliminates maintenance.

Cropping battered ends eliminates need for re-conditioning used rail and bars.

Cropping battered ends prepares the rail for welding and cropped rail ends bring high scrap prices.

*

These are strong points in favor of a RIBBONRAIL service program for used rail on your railroad.

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Have you received your copy of the latest A.R.E.A. committee report on continuous rail? If you fill out the coupon, we'll send you a copy.

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New Products (Cont'd)

½ and 1-hp compressor, both having a 100-psi maximum rating. The 1-hp unit delivers 4.2 cfm of air and the ½-hp model has an output of 1.91 cfm.

The heavy-duty compressor and motor are mounted on a sturdy chassis which has two large diameter wheels with rubber tires. A convenient handle, used to guide the unit, can be removed quickly for transporting the complete unit in a passenger car.

Air being taken into the compressor is filtered to prevent entry of dirt or dust which would create excessive wear on all parts. The compressor is automatically oiled by a ring-type oil pickup and centrifugal force. The unit has deep, directional fins for uniform cooling with the flywheel supplying a continuous blast of air.

Other features of the compressor are a balanced forged crankshaft; quick acting, quiet valves; easy valve inspection; forged connecting rods and an automatic unloader. The compressors are equipped with an air tank.

Mixall

...THE NEW B-G Mixall

MIXES ALL THE HOT PATCH YOU NEED, ANY TIME, ANYWHERE, ANY WEATHER

Now, the new Barber-Greene Mixall gives you the opportunity to offer high quality bituminous paving for driveways, sidewalks, service stations, industrial plants, parking lots . . . and other "black top" jobs at new low costs.

The Mixall, a completely new, compact and portable small-job maintenance and paving mixer, will produce up to 5 t.p.h. of any type hot mix . . . up to 10 t.p.h. of cold mix . . . will produce low slump Portland cement mixes. Built to be towed behind the aggregate truck for on-the-spot mixing, the Mixall is just as well suited for central plant or stock pile operation. The Mixall can work in any weather . . . even drying frozen aggregates.

Think of what you could do with the new B-G Mixall in your territory. Then see the Mixall at your first opportunity . . . or write for full information.

THE ONLY SMALL JOB MAINTENANCE MIXER WITH...

- ROTARY DRUM DRYING: The same principle used in largest B-G Continuous Dryers.
- TWIN SHAFT HEATED PUGMILL: "Kneading" action assures even coating of every aggregate particle.
- POWER SKIP HOIST: Only 14" high for easy charging.
- HIGH DISCHARGE: Can discharge directly into place, into wheelbarrows or gas buggies.

Barber-Greene BG

Aurora, Illinois, U. S. A.

POWDER-ACTUATED TOOL

A POWDER-ACTUATED tool, designated the "Super-Power Jobmaster," designed to drive heavy shank fasteners into structural steel plates up to an inch thick and into concrete, has been announced by Ramset, a division of Olin Industries, Inc., Cleveland.

The tool weighs less than 8 lbs and is 15 in long. It is designed for either one-hand or two-hand operation. According to the manufacturer, it sets pins and studs ¾ in. in thread or head diameter at an average rate of one or more a minute. These pins and studs driven into 1-in structural steel have a holding power of up to 10,000 lb.

RAMSET Super-Power Jobmaster.

The new machine rounds out a Ramset interchangeable line which, in addition, includes a standard Jobmaster, using ¾ in and ¼ in studs and pins; and a Plus-Power Jobmaster for medium duty applications, using ⅜ in and ¼ in studs and pins.

It uses any of nineteen Ramset-designed fasteners, and has a choice of four powder loads of center-fire type, which are longer than previous loads. They feature an exclusive plastic wad which acts as a gas check, eliminating power distribution and leakage of gas down the barrel, and preventing spalling of concrete at the point where the pin or stud is driven.

The Super-Power Jobmaster requires no breech plug and is opened for loading or inspection with a quarter turn of the upper half of the assembly. Locked with a reverse quarter turn, it has a positive safety, making discharge impossible until the tool is pressed firmly against the work surface in a perpendicular position. The tool may be fitted with a disc adapter permitting the use of ⅞-in discs if desired.

WHAT BUCYRUS-ERIE SMOOTH CONTROL MEANS ON RAILROAD JOBS

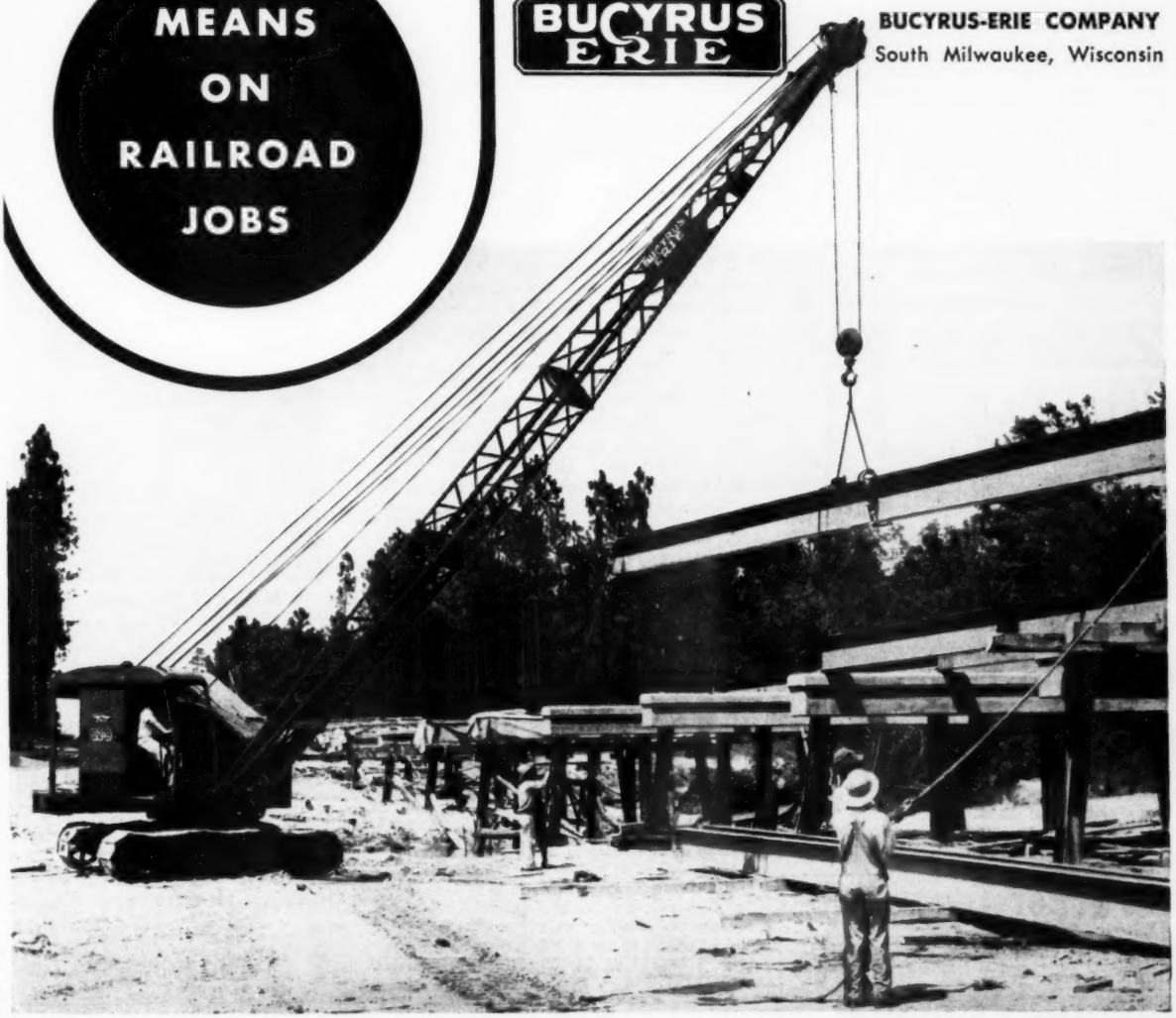
The smooth control of Bucyrus-Erie excavators and cranes combines pinpoint accuracy with fast operating cycles. This saves you money on routine jobs, like track maintenance, bridge construction, excavating and yard work. But perhaps most important, it saves you *time* on emergency assignments such as clearing landslides and washouts.

Bucyrus-Erie controls are direct-connected so operators can "feel" their work accurately. Lever pressures are low and all controls are within convenient reach without stretching or straining. Whether it's a delicate job like setting structural steel or straight excavating, operators enjoy full-command of the boom — can deliver high-speed work throughout an entire shift.

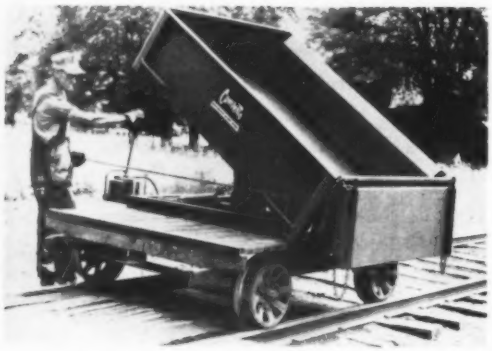
If your division requires an excavator with smooth control, that works at peak efficiency on *any* job, see your Bucyrus-Erie Distributor. He has the machine that will fill your needs best. 67E53

BUCYRUS ERIE

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

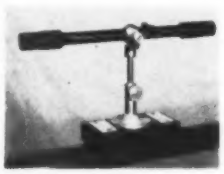


now cutting M of W costs with one or more of these HAYCO devices



Converto Portable Dump Unit—Lets one man take the place of four in unloading operations. Ideal for hauling spikes, tie plates, rail anchors, joints—disposing of scrap, culvert, tunnel and yard refuse—spotting ballast where you want it. Hydraulically operated—self-contained. "Slip it on—work it—slip it off." Available in 1-yard (illustrated) or 2-yard capacity. Make dumpers of push cars or pick-up auto trucks in a jiffy—and reconvert when finished. Hundreds in use for 10 years or more.

Lining Scope
Designed, built and priced for everyday use by regular gangs. No assembly required. Clamped to rail and leveled in less than a minute. 6-power telescope lines with cross-hair accuracy up to 1000 feet. Sturdy carrying case furnished.



Surfacing Scope
Four-power telescope. Calibrated for height adjustment. Permanent magnet in oak base holds instrument to rail. Use with standard surfacing equipment.

Spike Lock
Copper-bearing steel strip 7-½" long with 5 timber-gripping spurs. Place in loose-spike hole, re-drive spike along side, bend top over spike head. No special tools needed.

You can purchase one each of these* for the total sum of only .. $538.50

*Includes 1000 Spike Locks

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THE MONTH'S NEWS...

. . . among railway men—the associations—the suppliers

Changes in Railway Personnel

General

K. E. Henderson, trainmaster for the Frisco's subsidiary, the Alabama, Tennessee & Northern, and an engineer through training and experience, has been promoted to assistant superintendent of the Eastern Division at Newburg, Mo., on the parent line.

R. G. Wintrich, chief engineer of the Newburgh & South Shore at Cleveland, Ohio, has been appointed assistant general superintendent.

Edward J. Robrecht, engineer maintenance of structures on the Jersey Central Lines at Jersey City, N. J., has been named assistant engineer structures, the position of engineer maintenance of structures having been abolished.

Engineering

A. W. Dudley, Jr., instrumentman on the Chesapeake & Ohio and **K. K. Butler,** section foreman, have been promoted to assistant cost engineers with headquarters as before at Richmond, Va.

Jesse P. Walton, engineer of bridges and buildings for the Pennsylvania at Chicago, has retired.

J. S. Murphy has been named assistant to division engineer for the Louisiana division of the Illinois Central at Jackson, Miss., succeeding **H. W. Clowe** who has retired.

S. H. Fredericks has been appointed assistant division engineer for the New York Central, Ohio Central division, at Columbus, Ohio, succeeding **James Carey** who has been transferred to the Toledo division at Toledo, Ohio, replacing **T. C. Kauffman** who has retired.

T. H. Friedlin, whose retirement as assistant timber engineer for the New York Central was announced recently (RT&S, April, p. 80) was born September 17, 1888, at Portsmouth, Va. He studied civil engineering at Virginia Polytechnic Institute and began his service with the Central in 1911 after which he held a number of engineering positions before becoming timber engineer in 1944.

T. H. Friedlin

Walter O. Boessneck, who was recently appointed office engineer for the Erie at Cleveland (RT&S, April, p. 80), was born November 8, 1893, at Paterson, N. J., and began service with the Erie in 1916 as a chairman. He became draftsman in 1917, and following two years military service, returned in that same capacity where he served until becoming leading draftsman in 1926. He advanced to senior draftsman in 1940 and assistant chief draftsman the following year. In 1949 he was named chief draftsman, the position he was holding at the time of his recent promotion.

Walter O. Boessneck

Fred C. Teske has been named assistant to chief engineer on the Soo Line with headquarters at Minneapolis, Minn.

(*Please turn to page* 72)

WANTED

Graduate Civil Engineer to work for Class 1 Railroad in the Northeast. Applicant must be able to engage in all field and office work common to railroad maintenance, and must be able to competently handle structural analysis of bridges and buildings, prepare plans, and estimates, and do necessary field work in connection with bridge, building, and track maintenance, and construction. Salary $3,936.00 per annum, or more, depending upon experience and qualifications, plus cost of living adjustment. Position has liberal pension, vacation and sickness benefits. Give complete details of education, experience and qualifications with application. Address replies to Box 155, RAILWAY TRACK AND STRUCTURES, 30 Church St., New York 7, N.Y.

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is simple, economical
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One spraying with "Telvar" W gives rails and ties season-long protection from weeds and grasses.

As little as 40 to 60 pounds of Du Pont "Telvar" W per acre rid key areas of hazardous vegetation *for a growing season or longer!* This powerful weed killer works through the roots . . . gives long-term protection around sidings, track, switches, culverts, bridges, fences and railyards.

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YOU'LL PROFIT with "Telvar" W because it brings new efficiency and economy to weed-control programs. It's a wettable powder easily mixed with water. "Telvar" W is non-flammable, non-volatile and low in toxicity to humans and animals. "Telvar" W will not corrode spraying equipment.

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On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

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Railway Personnel (cont'd)

W. Haden Wood, division engineer on the Southern at Sheffield, Ala., has been appointed assistant to chief engineer, maintenance of way and structures, Central Lines, at Atlanta, Ga., to succeed **Charles R. Gates,** who has retired after 40 years of service. **Wyatt H. McNairy,** assistant division engineer at Charlotte, N. C., has been promoted to division engineer at Bristol, Va., to replace **Howell T. Arthur,** who has succeeded Mr. Wood at Sheffield.

C. A. Christensen has been appointed division engineer for the Burlington at Denver, Colo., replacing **J. S. Findley** who has been named temporary construction engineer for a track-relocation project at the Offutt Air Base, Bellevue, Neb.

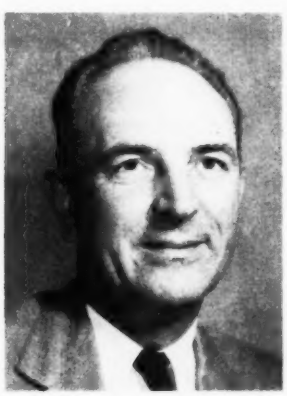
G. V. Guerin, bridge engineer on the Great Northern, has been named assistant chief engineer at Seattle, Wash., succeeding **H. M. Goehring,** who has retired. **R. W. Gustafson,** assistant bridge engineer, has been promoted to bridge engineer, and **C. D. Archibald,** assistant engineer at St. Paul, Minn., has been appointed to succeed Mr. Gustafson.

Samuel B. Gill, whose promotion to grade crossing engineer for the Erie at Cleveland was reported recently (RT&S, April, p. 80), was born August 26, 1902, at Wicomico Church, Va., and graduated from the University of Virginia in 1924. He began service with the Erie in 1926 as a transitman, and subsequently held

Samuel B. Gill

the positions of general yard foreman, draftsman and senior draftsman before becoming office engineer in 1953.

R. H. Heinlen has been promoted to division engineer for the Gulf, Colorado & Sante Fe, with headquarters at Fort

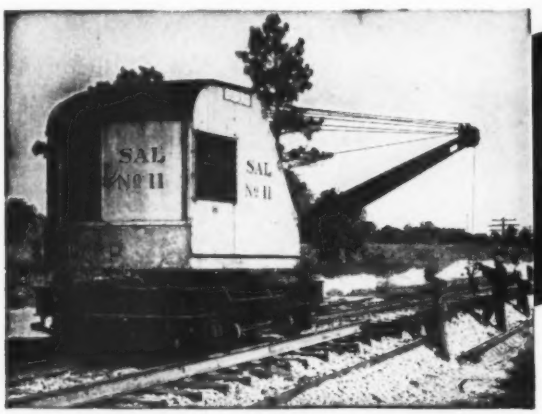


R. H. Heinlen

Worth, Tex., succeeding **S. W. Brady** who has retired.

Mr. Heinlen was born September 26, 1909, at Lorimor, Iowa, and began service with the Sante Fe in 1936 following his graduation from the University of

(*Continued on page* 74)



Rail-Road Specialist

We call Burro Cranes "Railroad Specialists" because they do so many railroad jobs so well. Track work, bridge work, bulk materials handling, Mechanical Stores Department, material handling with or without magnet, are only a few jobs Burro does with speed and economy. Burro Cranes are designed for railroad work—not adapted to it. Watch a Burro work and see why it's called on to do so many jobs by most of the country's railroads.

Only BURRO CRANES HAVE:

- Fast travel speeds—up to 22 M.P.H.
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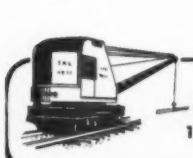
- Elevated Boom Heels for working over high sided gondolas.
- Short tail swing—will not foul adjoining track.
- Low overall height—Burro can be loaded and worked on a standard flat car.



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Having two socket speeds, and amply powered by a 5.4 horsepower engine, this husky Nordberg "Mechanical Muscle" makes quick work of nuts that are "frozen" or rusted on. Adjustable spring-loaded overload release controls torque within plus or minus 5%.

Simple and economical to operate and maintain, the Nordberg Power Wrench is another good example of the many Nordberg "Mechanical Muscles" being used by the nation's railroads to save maintenance dollars.

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R454

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NORDBERG MACHINERY

Railway Personnel (cont'd)

Missouri. After serving as a bridge draftsman and designer in the bridge engineer's office at Chicago from 1936 until 1941, he joined the U. S. Army engineer Corps as a first lieutenant and was subsequently advanced to captain and major. In 1946 he returned to the Santa Fe as an assistant engineer in the bridge engineer's office and later held the same position in the chief engineer's office of the GC&SF at Galveston, Tex. In January of this year, he was appointed general foreman B&B&WS for the northern division at Ft. Worth, and held this position until his recent promotion.

A. S. Barr, assistant division engineer for the Pennsylvania at Buffalo, N. Y., has been promoted to division engineer at Cincinnati, Ohio to succeed **Norman Olsen,** who has been transferred to Fort Wayne, Ind. to replace **R. W. Riser.**

G. D. Mayor, assistant division engineer on the Chesapeake & Ohio at Russell, Ky., has been appointed to division engineer at Huntington, W. Va., and **H. B. Orr,** assistant division engineer at Clifton Forge, Va., has been transferred to succeed Mr. Mayor at Russell.

George L. Davenport, Jr., who has been promoted to assistant to chief engineer, Coast Lines, of the Sante Fe at Los Angeles (RT&S, March, p. 108), was born at San Diego, Calif., April 22, 1886. He entered railway service on the Pennsylvania in June, 1906, following his graduation from the Massachusetts Institute of Technology. After a year with the PRR as an assistant in the engineering corps, he joined the Santa Fe as a draftsman at San Bernardino, Calif. In 1910 he was made chief clerk to the engineer grand division and served in that capacity until 1912 when he left the railroad to accept a position as assistant engineer for the

G. L. Davenport, Jr.

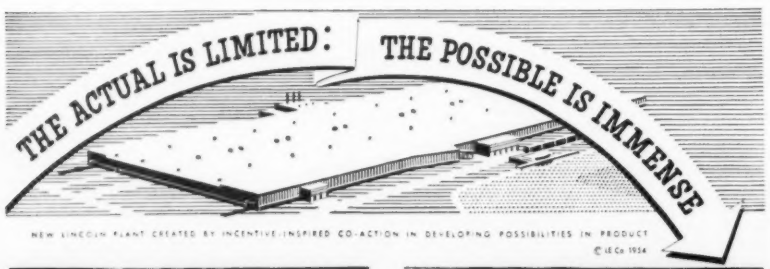
City of Los Angeles. He returned to the Santa Fe in 1915 as assistant engineer, and in 1921 was named assistant engineer, hydraulics, the position he was holding at the time of his recent appointment.

T. R. Klingel, who was recently named engineer maintenance of way for the Soo Line at Minneapolis (RT&S, April, p.74), was born at St. Paul, Minn.,

T. R. Klingel

April 21, 1915. He began his railroad service with the Soo Line in 1937 following his graduation from the University of Minnesota. He served as a rodman until September 1938 at which time he obtained a leave of absence in order to return to the University of Minnesota for graduate study. In June, 1940, he returned to the railroad as assistant engineer, and was later promoted to engineer of maintenance and division engineer. In 1947 he again left

(*Continued on page* 76)


THE ACTUAL IS LIMITED:
THE POSSIBLE IS IMMENSE
NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT
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PROBLEM: Break down and cracking of manganese frogs from heavy impact and abrasion is a costly problem for maintenance-of-way shops. This Number 11 frog is cracked and worn down . . . apparently ready for the scrap pile.

ANSWER: Build-up with "Manganweld C" electrodes speeds crack repairs . . . cuts maintenance manhours. Photo above shows uniform, top-quality repair with Lincoln welding team of "Manganweld C" and "Shield-Arc" 300-amp engine driven welder.

HOW LINCOLN "MANGANWELD C" SIMPLIFIES MAINTENANCE-OF-WAY

Above example illustrates how Lincoln "Manganweld C" is successfully used in building up high-manganese frogs and crossings. Maintenance-of-way engineer on this job reports "Manganweld" rods used with Lincoln "Shield-Arc" welder give him excellent results at low cost.

Weld metal of "Manganweld C" is uniform, easy to deposit. Less spatter and less arc blow speed repairs and cut costs. Thoroughly tested and approved by the A.R.E.A. and individual railroads.

Latest data on complete line of Lincoln hardsurfacing electrodes is found in Bulletin 466. For information about new arc welding procedures and equipment, write The Lincoln Electric Railway Sales Company, 11 Public Square, Cleveland 13, Ohio. Railway representatives of

THE LINCOLN ELECTRIC COMPANY
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Install Q and C Derails at clearance points to help guard against interruptions in service on your principal tracks.

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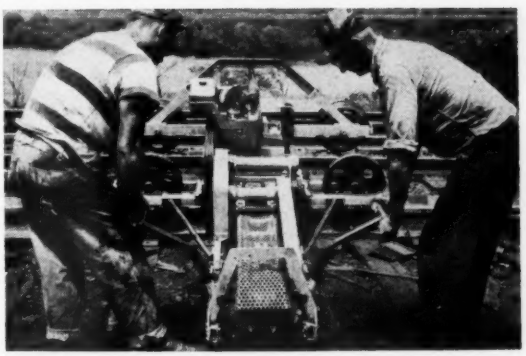
A BETTER Way TO Clean Cribs



RTW P-46 Ballast Extruder

For lowering ballast in cribs before adzing ties, this RTW machine embodies design and operating features that help speed rail replacement jobs and keep down costs. Rugged teeth mounted on an engine-driven endless chain speedily remove ballast to intertrack spaces or to shoulders without damaging ties. Cribs are cleaned to a uniform level, thus avoiding formation of water pockets.

Simple, compact design makes the RTW P-46 Ballast Extruder easy to move along track to and from location. A counterbalancing feature minimizes effort required by operator to raise and lower operating head while machine is in use.

Be sure to call or write immediately for full description and prices on this time- and cost-saving unit.

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Surface Grinders • Rail Drills • Ballast Extruders • Bit Sharpeners
Tie Nippers • Grinding Wheels • Cut-Off Wheels
Brushmaster Saws

Railway Personnel (cont'd)

the Soo Line to become an associate professor of civil engineering at the University of Minnesota and served in that capacity until September 1951 when he returned to the railroad as principal assistant engineer.

Wendell R. Swatosh, who was promoted to assistant superintendent of construction for the Erie at Cleveland, Ohio, (RT&S, April, p. 80), was born September 4, 1894, at Passaic, N. J. After completion of private school training, he joined the Erie in 1916 as a rodman. He later held positions of levelman, draftsman, instrumentman and transitman until being named resident engineer in 1918. He was promoted to assistant engineer in 1925 and held this position until January, 1953, when he was appointed assistant to superintendent of construction. He is a past president of the Cleveland section of the ASCE and a past chairman of committee 20 of the AREA.

Wendell R. Swatosh

H. W. Nuebaumer has been appointed acting division engineer, Coast division, for the Southern Pacific with headquarters at San Francisco, replacing **J. E. Wheeler** who is on sick leave. **Curtis S. Conner** has been named acting general track supervisor at San Francisco, succeeding **C. E. Neal** who has been appointed acting division engineer for the Northwestern Pacific, an SP subsidiary, at San Rafael, Calif., replacing **A. L. McHenry** who is on sick leave.

Earl G. Brisbin, whose appointment as engineer maintenance of way of the Pittsburgh & Lake Erie at Pittsburgh, Pa., was announced recently (RT&S, March, p. 104), was born at Adrian, Mich., on May 5, 1898, and entered railway service on October 15, 1916, as a rodman on the Michigan Central at Jackson, Mich. In 1918 he was advanced to instrumentman at Niles, Mich., being transferred to Jackson two years later. From 1920 to 1941 Mr. Brisbin served as draftsman, assistant engineer, roadmaster and supervisor of track, with headquarters at Jackson, and in 1941 he was promoted to assistant division engineer at Bay City, Mich. In 1944 he returned to Jackson as division engineer —the position he held at the time he received his recent promotion.

Earl G. Brisbin

Track

A. F. Richards, extra gang foreman, has been promoted to assistant roadmaster for the 30th track division of the Frisco, with headquarters at Afton, Okla.

M. S. Wakely, roadmaster for the Canadian Pacific, has been named to the newly created position of assistant engineer at Calgary, Alta. **W. Stadnicki** has been transferred as roadmaster to Lethbridge, Alta., succeeding Mr. Wakely, and **J. Puzzi** has been transferred to Ft. Macleod, Alta., to replace Mr. Stadnicki. **J. P. Ushaka** has been promoted to roadmaster at Consul, Alta., succeeding Mr. Puzzi.

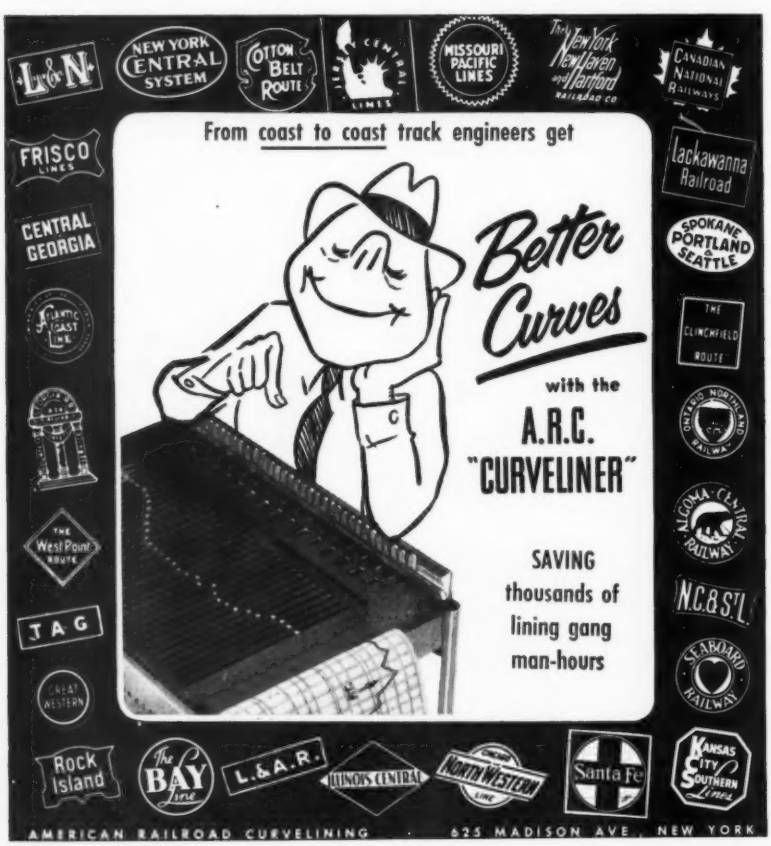
Joseph A. Cerreto, district supervisor on the Central Vermont at Palmer, Mass., has been promoted to general roadmaster at St. Albans, Vt.

O. L. Roberts, assistant section foreman on the Norfolk & Western at Bluefield, W. Va., has been promoted to assistant roadmaster at Williamson, W. Va.

T. F. Kenney, who has been promoted to supervisor of track for the Illinois Central at Carbondale, Ill., (RT&S, March, p.114) was born at Chicago on October 29, 1923, and attended Mt. Carmel high school. He began his service with the IC as a section laborer after graduation from high school in 1940. He later served as timekeeper and assistant foreman before entering military service in November, 1943. After his discharge from the army in November, 1945, he returned to the IC as track foreman and later was made extra gang foreman, the position he held at the time of his recent promotion.

W. H. Snyder has been appointed acting roadmaster for the Rock Island at Fairbury, Neb., succeeding **W. H. Dicks** who has retired.

(*Please turn to page* 78)



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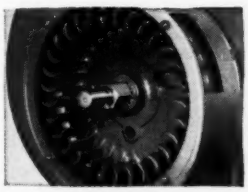
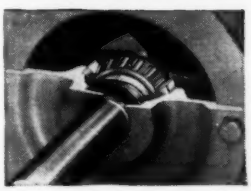
WISCONSIN Heavy-Duty engineering design and construction provide the dependable "Lugging Power" that enables these engines to outperform high-speed power units. When variable or "shock loads" occur, WISCONSIN Lugging Power *hangs on*, where engines of light-duty, high-speed design will stall. *Your Wisconsin Engine keeps the machine going.*



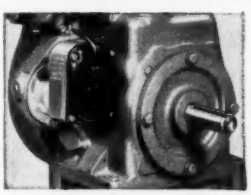
TROUBLE-FREE, ALL WEATHER AIR-COOLING . . .

No machine is any better than the *Power* that drives it. And efficient cooling, under all operating conditions, is one of the first essentials to *dependable power!* A large capacity fan, cast in the flywheel of every Wisconsin Engine, provides trouble-free cooling, even in the most extreme temperatures.



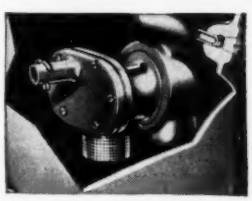
TAPERED ROLLER BEARINGS AT *BOTH ENDS* OF CRANKSHAFT . . .

These self-cleaning, file-hard bearings take up all load thrusts, permitting the use of either chain-, belt- or gear-drive direct from the extended crankshaft, without fear of damaging main or connecting rod bearings. This does away with the need for an outboard bearing.



HIGH TENSION, ROTARY TYPE OUTSIDE MAGNETO . . .

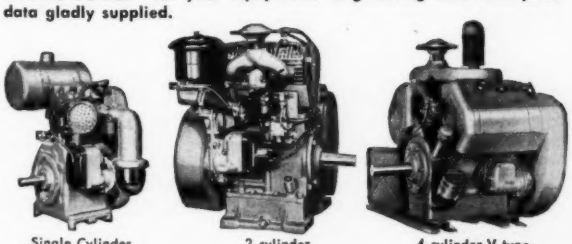
Positive gear drive direct from camshaft assures steady, uniform ignition at all times. The complete unit is conveniently mounted on the OUTSIDE of the engine for easy accessibility. Weather-sealed against moisture and dust. Equipped with Impulse Coupling for quicker, easier starting at all seasons.



POSITIVE, PUMP-CIRCULATED LUBRICATION . . .

All single cylinder models (with exception of Model AEN) have pump-circulated level splash system. Model AEN and multi-cylinder models pump an individual oil stream to each connecting rod. Other parts are lubricated by oil spray, assuring complete and thorough lubrication for smooth-running and long engine life.

These are some of the reasons why it pays to specify "WISCONSIN ENGINE POWER" for your equipment. Engineering and descriptive data gladly supplied.



Single Cylinder 3 to 9 hp. | 2-cylinder 7 to 15 hp. | 4-cylinder V-type 15 to 36 hp.

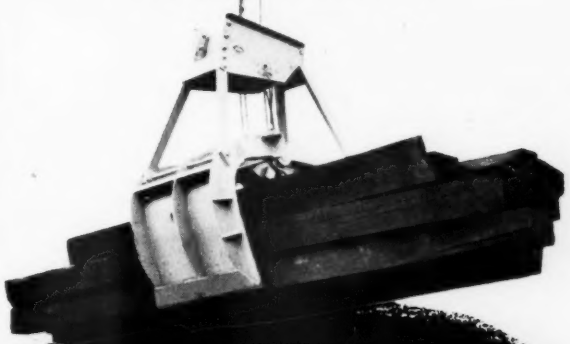
WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

A 7860-½AA

10,400 TIES UNLOADED IN TWO 8-HOUR SHIFTS



with a BLAW-KNOX RAILROAD TIE GRAPPLE

● With 10 to 12 standard ties per grab, this Blaw-Knox Grapple unloaded 26 gondola cars of 400 ties each in 16 hours! That's the kind of performance your Blaw-Knox Grapple gives you to speed the work, cut tie handling costs and assure maximum crane efficiency.

ACTUAL JOB REPORTS SHOW AN AVERAGE OF 8 TIES PER GRAB

CHECK THESE BLAW-KNOX FEATURES BEFORE YOU BUY ANY GRAPPLE

- **Low grapple height (low headroom) permits maximum crane reach.**
- **Safe operation when handling creosoted ties from high side gondola cars.**
- **All welded construction permits maximum handling capacity for a crane of given size, without sacrificing strength.**
- **Efficient design allows deep penetration for a full load.**
- **Fast, safe crane operation results from firm gripping of the ties.**

WRITE FOR BULLETIN 2404

BLAW-KNOX

BLAW-KNOX COMPANY
BLAW-KNOX EQUIPMENT DIVISION
Dept. 391 PITTSBURGH 38, PA.
Offices in Principal Cities

RAILROAD TIE GRAPPLES

Railway Personnel (cont'd)

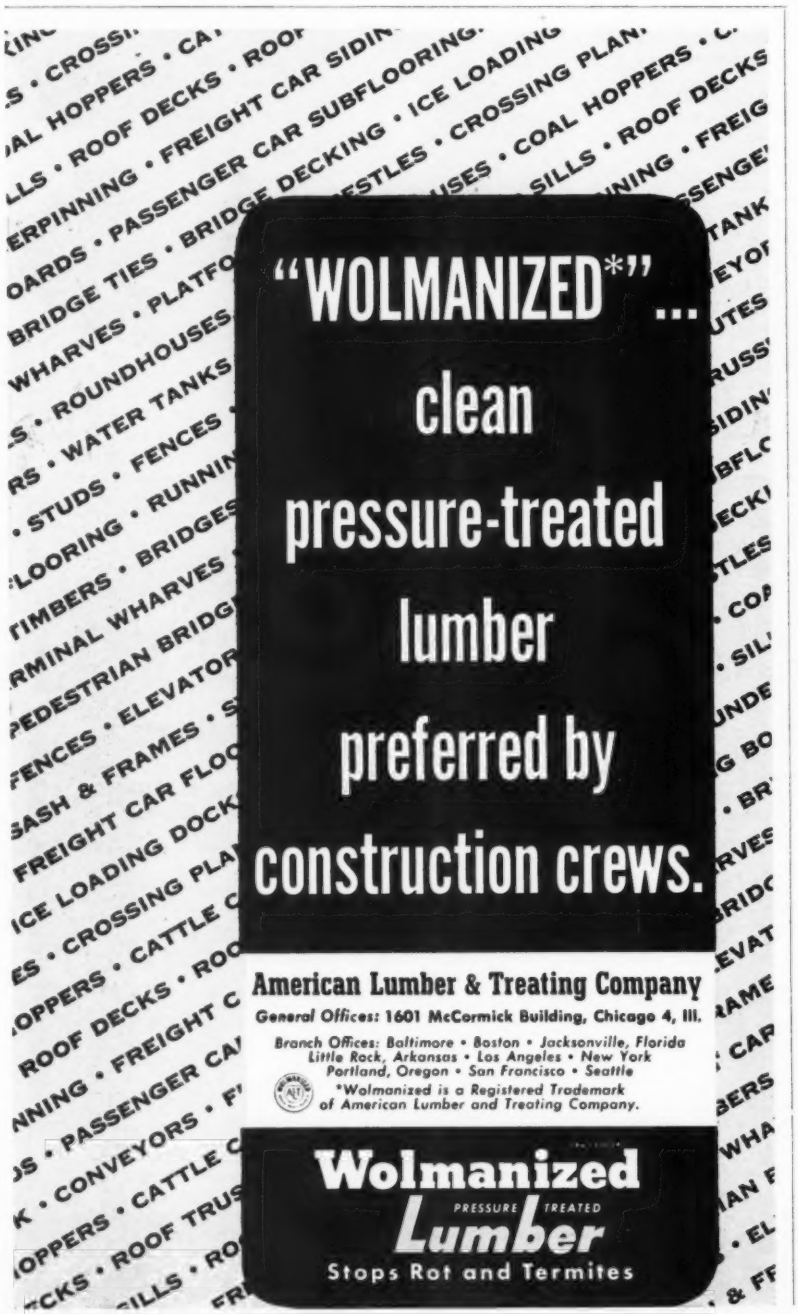
E. G. Gilmer has been appointed assistant roadmaster for the Sante Fe at Wellington, Kans., replacing **R. E. Clancy.**

Jack E. Greene, supervisor of track on the Southern at Charleston, S. C., has been transferred to Salisbury, N. C., to succeed **Marvin E. Wilson, Jr.,** who, as announced elsewhere in these columns, has been appointed supervisor of bridges and buildings at Greensboro, N. C. **Roy P. Taylor, Jr.,** supervisor of track at Mooresville, N. C., has been transferred to Charleston to replace Mr. Greene, and **Fred R. Hoke,** assistant supervisor of track at Greensboro, has been promoted to replace Mr. Taylor at Mooresville. **J. E. Blanchard** has been appointed assistant supervisor of track at Columbia, S. C.

Bridge and Building

W. T. Bryan, student supervisor, has been named assistant general foreman B&B&WS, Eastern division, east and west, of the Frisco, with headquarters at Springfield, Mo.

J. R. Cary, assistant cost engineer on the Chesapeake & Ohio, has been promoted to assistant supervisor B&B at Hinton, W. Va.



W. L. Hawkey has been promoted to supervisor bridges and buildings on the Illinois Central (RT&S, April, p. 81).

Mr. Hawkey was born at Edgewood, Illinois, March 25, 1916, and began his railroad service with the IC as a bridgeman in 1938. He was promoted to B&B foreman on the Illinois division in 1947. In April, 1953 he was promoted to general foreman B&B and served in that capacity until his recent promotion.

Dennis N. Shrum, assistant bridge and building supervisor on the Southern at Charlotte, N. C., has been promoted to bridge and building supervisor at Charleston, S. C. **Marvin E. Wilson, Jr.,** supervisor of track at Salisbury, N. C., has been appointed bridge and building supervisor at Greensboro, N. C.

Special

Daniel J. Rogers, Jr., supervisor of work equipment on the Southern at Greensboro, N. C., has been transferred to Lexington, Ky. **Everette I. Rudisill** has replaced Mr. Rogers at Greensboro.

C. M. Hayes has been named supervisor equipment—maintenance of way for the Soo Line (RT&S, April, p. 74.)

Mr. Hayes was born February 4, 1893, at Sturgeon Bay, Wis., and began his railroad career with the Soo as a section laborer in 1910. In 1913 he was promoted to section foreman and became

C. M. Hayes

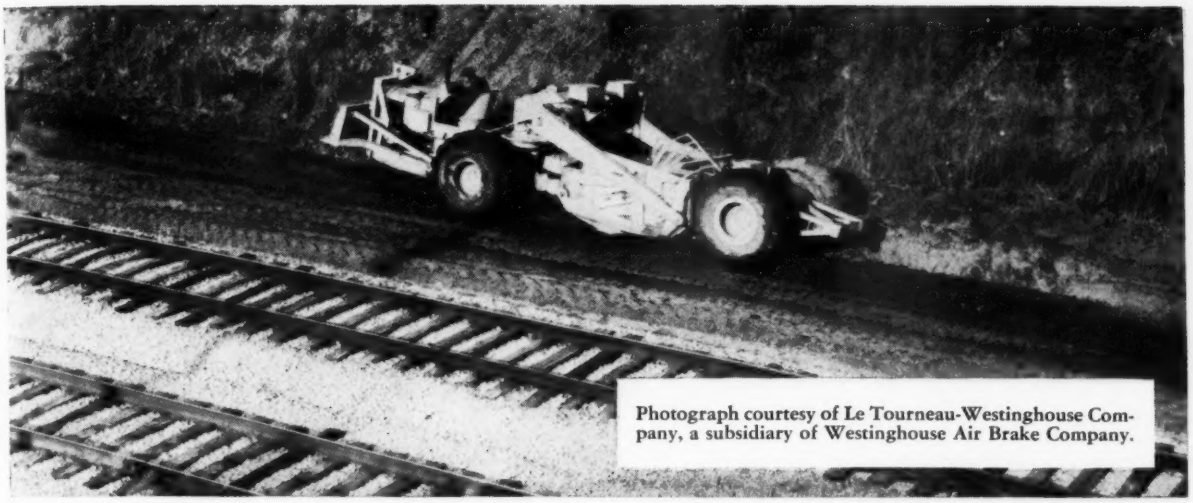
extra-gang foreman in 1916. He was appointed roadmaster in 1919 and worked at various locations as such until 1925, when he was appointed assistant general roadmaster. In 1937 he was named general roadmaster and served in this capacity until his recent appointment.

Donald R. Bash has been appointed assistant general fire prevention engineer for the Southern Pacific, with headquarters at San Francisco, succeeding **R. J. Dettling** whose death is noted elsewhere in these columns.

Obituary

Steve Fransescon, assistant engineer for the Milwaukee at Chicago, died of a heart attack in his home on March 27.

(*Please turn to page* 80)



Photograph courtesy of Le Tourneau-Westinghouse Company, a subsidiary of Westinghouse Air Brake Company.

Does your program for off-track equipment maintenance include these important features...

1. **The use of uniform high quality lubricants and fuels throughout your system to keep equipment operating smoothly and continuously.**
2. **Expert petroleum engineering counsel that will help lower your maintenance costs.**
3. **Simplified lubricant storage and handling.**
4. **Prompt lubricant delivery service when and where you need it.**

Gulf has a plan that incorporates all these essentials of a successful maintenance program. All you have to do to gain the advantages our plan offers is to contact your nearest Gulf office. A Gulf Sales Engineer is always available to help you put the program into operation throughout your system.

Gulf has had wide experience servicing the equipment of leading earth-moving contractors. This experience can aid you to gain smoother operation on every job.

A copy of the informative Gulf booklet, "Lubrication and Maintenance Guide for Contractors' and Allied Equipment," will be sent you upon request.

GULF

Gulf Oil Corporation • Gulf Refining Company
1822 Gulf Building, Pittsburgh 30, Pa.

Please send me, without obligation, my free copy of the new revised edition of "Lubrication and Maintenance Guide for Contractors' and Allied Equipment." RTS

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Company.....

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Why Tie-Up Your Right-of-Ways or Send Out Special Work Crews?

when a Mobile Bantam can handle your off-track digging and lifting jobs!

It will pay you dividends to investigate the versatile Bantam Method of getting your jobs done faster - with less labor - at far less cost.

When faced with ditch cleaning, culvert placing, clearing, bridge repair, steel placement . . . all off-track digging and lifting jobs . . . send out a Bantam!

Bantams drive anywhere at 35 mph., to handle these jobs . . . over highways, country roads or right-of-ways. No more loss in waiting for work trains to arrive . . . no more tie-ups of regular traffic with a Bantam on the job.

Nine quick-change front end attachments easily convert on the job to trenching, dragline, clamshell, shovel, magnet, tie grapple, pile driver or concrete pouring operations.

Write for complete information, specifications and prices. Arrange for a free demonstration on your job. Write today.

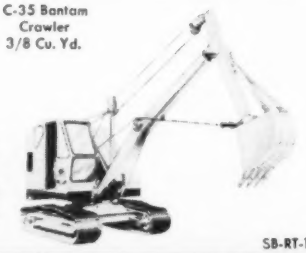
MORE JOBS BANTAMS CAN HANDLE!

- Stockpiling material
- Loading scrap metal
- Lifting ties and rails
- Pouring concrete
- Widening banks
- Repairing grade crossings
- Digging sump holes for yard drainage
- Emergency switching
- Leveling right-of-way
- Removing tracks and debris
- Pile driving
- Snow removal
- Misc. clearing & grading

T-35 Bantam on All-New Crane Carrier Lifts 12,000 Lbs.

Bantam mounts on Crane Carriers, Re-manufactured trucks or your own trucks of suitable size. Also available on tracks - Crawler Bantam features 2-speed independent travel, has 16", 24" or 32" pads to go anywhere in any ground condition.

C-35 Bantam Crawler 3/8 Cu. Yd.



SB-RT-1

WORLD'S LARGEST PRODUCER OF TRUCK-CRANES AND EXCAVATORS

SCHIELD Bantam®

COMPANY • 284 PARK ST., WAVERLY, IOWA

Railway Personnel (Cont'd)

R. J. Dettling, assistant general fire prevention engineer for the Southern Pacific at San Francisco, died recently.

Association News

Roadmasters' Association

The next meeting of the Executive committee of the association will be held at the Chicago Engineers' Club on May 24. The meeting, which will start at 9:00 a.m. Chicago Daylight Saving Time, has been called to discuss important business of the association, including plans for the coming convention to be held on September 13-15, at the Conrad Hilton Hotel, Chicago. At this meeting the Executive committee will also review drafts

(*Continued on page* 82)

Meetings and Conventions

American Railway Bridge and Building Association—Annual meeting, September 13-15, 1954, Conrad Hilton Hotel, Chicago. Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

American Railway Engineering Association—Annual Meeting, March 16-18, 1954, Palmer House, Chicago. Neal D. Howard, Secretary, 59 E. Van Buren street, Chicago 5.

American Wood-Preservers' Association—Annual Meeting April 26-28, 1954, Chalfonte-Haddon Hall Hotels, Atlantic City. W. A. Penrose, Secretary-treasurer, 839 Seventeenth street, N. W., Washington 6, D. C.

Bridge and Building Supply Association—L. R. Gurley, Secretary, 201 North Wells street, Chicago 6.

Maintenance of Way Club of Chicago—E. C. Patterson, secretary-treasurer, Room 1512, 400 W. Madison street, Chicago 6.

Metropolitan Maintenance of Way Club—Secretary, 30 Church street, New York.

Mississippi Valley Maintenance of Way Club—P. E. Odom, Secretary-Treasurer, Room 1008, Frisco Building, 906 Olive street, St. Louis 1, Mo.

National Railway Appliances Association—I. B. Templeton, Secretary, 1020 So. Central avenue, Chicago 44; Lewis Thomas, Assistant Secretary, 59 East Van Buren street, Chicago 5.

Railway Tie Association—Annual Meeting, October 20-22, Mayflower Hotel, Washington, D. C. Roy M. Edmonds, Secretary-Treasurer, 1221 Locust street, St. Louis 3, Mo.

Roadmasters' and Maintenance of Way Association of America—Annual meeting, September 13-15, 1954, Conrad Hilton Hotel, Chicago. Elise LaChance, Secretary, 431 S. Dearborn street, Chicago 5.

Track Supply Association—Lewis Thomas, Secretary, 59 E. Van Buren street, Chicago 5.

LESS LABOR KILLS more brush at lower costs when you use "Ammate." It kills more kinds of brush than most weed and brush killers and keeps brush down longer!

AFTER THREE YEARS—Here's the same right-of-way as shown at left. Brush still remains under control, yet low-growing natural cover returned to resist erosion.

How to keep brush down for years!

Industrial users of "Ammate" Weed and Brush Killer say that when the original spray job is done well, brush is kept under control with nothing more than an occasional spot spray years later.

This year, be sure to include "Ammate" in your brush-control program. It's ideal on power, telephone pipe-lines and railroad right-of-ways—wherever you have a brush problem.

Free illustrated booklet *describes how to control brush in right-of-ways with Du Pont "Ammate." For your copy, write Du Pont, Grasselli Chemicals Department, D-4026, Wilmington, Delaware.*

DU PONT
REG. U. S. PAT. OFF.

Ammate®

Weed and Brush Killer

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

EVEN WHERE right-of-ways adjoin sensitive crops, like cotton, you can rely on "Ammate" to do the job safely. That's because it's not volatile—reducing spray-drift damage to a minimum.

MAINTENANCE CREWS and custom sprayers prefer "Ammate" for faster, safer, longer-lasting control of brush. And they can use it without hazard to themselves, livestock or wildlife. "Ammate" is non-flammable, too.

That's the story on Duff-Norton lightweight aluminum track jacks.

No. 517BA single acting surfacing jack (left) can raise 15 tons, 5 inches, and is twenty-five per cent lighter than a similar jack with a malleable housing. No. 117A single acting track jack (right) can move 15 tons, 13 inches and is thirty-three per cent lighter than its counterpart with a malleable housing.

Safe, rugged, dependable Duff-Norton aluminum track jacks soon pay for their slight additional cost by increased productivity . . . crews can keep pace with fast, modern maintenance equipment.

Get the complete specifications on these and other Duff-Norton track jacks. Write the world's oldest and largest manufacturer of lifting jacks for Track Jack Bulletin AD18-F, The Duff-Norton Manufacturing Co., P. O. Box 1889, Pittsburgh 30, Pa. Canadian plant—Toronto 6, Ontario.

DUFF-NORTON

Jacks

"Giving Industry A Lift Since 1883"

Association News (Cont'd)

or reports of committee's subjects to be presented at the convention in September.

Maintenance of Way Club of Chicago

The annual meeting of the club was held on April 26 at Welty's restaurant in the Field building, Chicago. The principal speaker was John P. Hiltz, Jr., chief engineer maintenance of way, New York Central System, whose subject was: "Maintenance of Way—Its Future Problems and Needs." This meeting was also made the occasion for paying tribute to the honorary members of the club, many of whom were present and sat at the speakers' table.

In the election of officers, H. B. Christianson, special engineer, Milwaukee, Road, and first vice-president of the association, was advanced to president; N. D. Howard, secretary, American Railway Engineering Association, was elected first vice-president; C. E. Weller, division engineer, Illinois Central, and a director of the club, was advanced to second vice-president; and Merwin H. Dick, editor of Railway Track and Structures, was re-elected executive secretary. In addition, the following were elected directors: R. H. Beeder, assistant chief engineer, Atchison, Topeka & Santa Fe System; F. J. Corporon, superintendent way and structures, Chicago, South Shore & South Bend; and H. M. McFarlane, vice-president, sales, Cullen-Friestedt Company.

Bridge & Building Association

Plans for the annual convention of the association, to be held at the Conrad Hilton Hotel, Chicago, September 13-15, will be among the matters discussed at the next meeting of the Executive committee which will be held on June 28 at the Chicago Engineers' Club. At the same meeting it is planned that the Executive Committee will review preliminary drafts of the reports of subjects committees, which are now being prepared for presentation at the convention.

American Railway Engineering Association

The seven new committee chairmen who assumed office at the close of the recent annual convention met with President G. W. Miller at the association headquarters in Chicago on April 26. The chairmen reviewed committee and association procedures in the interest of obtaining the greatest efficiency in handling committee work.

Five committees of the association have scheduled meetings to be held during May. The committees and their dates and places of meeting are as follows: Iron and Steel Structures, May 4 and 5 at New Orleans; Track, Hotel Jefferson, St. Louis, May 11 and 12;

(*Continued on page* 84)

Self-propelled 215 *runs on rails*

saves travel time between jobs . . .

Where conventional excavators and cranes have to be moved off-track over long, round-about routes from one job to the next, the Koehring 215 takes to the rails. RailAid powers its own rail-propulsion car . . . travels on-track at speeds up to 20 m.p.h.

You can send it anywhere along the line, at a moment's notice, to do any digging, lifting or material-handling jobs: cleans ditches, widens embankments . . . loads, unloads cars, stockpiles ballast, coal . . . repairs trestles, drives piles, lays rails . . . handles scrap or salvage.

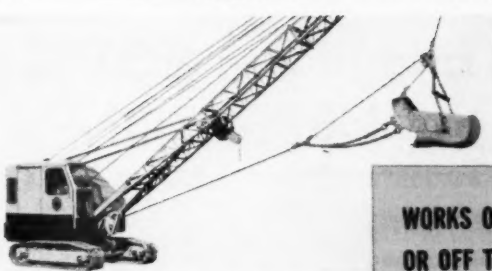
Because all travel is by rail, crawler life is considerably increased. Yet, you have complete flexibility for working on or off-track.

Clears the track in 10 minutes

Crane loads or unloads itself on ramp-equipped car in less than 10 minutes. Sets car on or off-track . . . clears the right-of-way for normal through traffic. Work of RailAid and crew is uninterrupted during entire shift. Crane safely lifts 6.9 tons from the car, 8.9 tons on ground . . . readily converts to magnet crane, pile driver, clamshell, dragline, ½-yard shovel or hoe. Learn more about this versatile on-and-off-track RailAid . . . write: Koehring Co., Milwaukee 16, Wisconsin.

KOEHRING *RailAid*®

(Subsidiaries: **KWIK-MIX • PARSONS • JOHNSON***)* K456



WORKS ON OR OFF THE PROPULSION CAR WITH ALL STANDARD ATTACHMENTS:

lift crane
magnet crane
pile driver
clamshell
dragline
shovel
hoe

Association News (Cont'd)

Masonry, Shoreham Hotel, Washington, May 20 and 21; Water, Oil and Sanitation Services, Room 1218, association headquarters, Chicago, May 18; Maintenance of Way Work Equipment, beginning May 17 at Peoria, Ill., and on May 18 a trip is planned through the plant and proving ground of the Caterpillar Tractor Company at Peoria.

Mississippi Valley Maintenance of Way Club

The last meeting of the club was held on April 12 at the DeSoto Hotel in St. Louis. The principal speaker was John P. Hiltz, Jr., chief engineer maintenance of way, New York Central System, who spoke on "Centralization in Maintenance of-Way Departments." Another feature of the program was a color motion picture depicting a road test that was made in Maryland to determine the effects of heavily loaded highway trucks on concrete pavement. President A. B. Chaney announced that the club had achieved a membership of 677, leaving only 23 to go to reach the goal for the current year of 700.

The next meeting will be held on May 10 at the same location. This meeting will start at 7:00 p.m. central daylight saving time and will be preceded by a social hour starting at 6:00 p.m. CDST. The speaker at the May 10 meeting will be George Rohlfing personnel manager, Aluminum Company of America, whose subject will be "Post Holes." This will also be the annual meeting of the club, and officers for the ensuing year will be elected.

This bridge was NOT protected by the LIBBEY-ZONE Process

LIBBEY-ZONE

the process that cuts fire loss and weather deterioration

LIBBEY-ZONE protected structures resist weather deterioration and these installations provide years of efficient protection without attention or repair.

LIBBEY-ZONE installations resist fire damage from oil drippings, burning fusees, cigarettes, etc.

LIBBEY-ZONE applications are made without traffic disruption; require little time and no special equipment or trained personnel.

The picture shows some of the physical damage to a through-line bridge of a major railroad as it burned recently near Chicago. What the picture does *not* show, is the disruption of schedules and the cost of repair and replacement. If this bridge had been LIBBEY-ZONE Process treated, chances are, it *would not have burned and would be standing today.*

Easy-to-apply LIBBEY-ZONE HEAVY DUTY coating and gravel aggregate is the proved answer to effective fire prevention for wooden railway structures. The LIBBEY-ZONE Process can be applied directly from the drum, without preheating . . . and the work is done by unskilled help. Important, too, test applications of the LIBBEY-ZONE Process made over ten years ago, show virtually no weathering effect after exposure to every imaginable type of weather.

Investigate the LIBBEY-ZONE Process. The facts and the proof of performance are yours without obligation. Learn for yourself how this process can cut fire loss on your road. Write today for our free booklet.

LIBBEY-ZONE is the time-proved fire and weather resistant system

THE ZONE COMPANY

Rail Products Division, Box 789, Ft. Worth 1, Texas

Supply Trade News

General

The **Brookville Manufacturing Company,** Brookville, Pa., is now manufacturing and supplying all-steel, fully-insulated structures of a design similar to the Universal buildings formerly produced by **Blaw-Knox Company,** and has completed arrangements to meet servicing and expansion needs of users of existing Blaw-Knox buildings. **Paul L. Erdner,** formerly manager of Blaw-Knox, and **Anthony A. Kramer,** formerly chief engineer, have been named president and vice-president, respectively, of the new company.

Railway Maintenance Corporation, Pittsburgh, Pa., is no longer handling RMC Rail Joint Packing. This portion of the company's business has been transferred to the **Zonolite Company.** The latter company has offices in Chicago and plant and offices at Travelers Rest, S. C. Requests for information on this material should be addressed to either of these offices.

The **American Hoist & Derrick Co.** has moved its Chicago office to River Forrest, Ill. The move was made for the purpose of providing better customer service and to give more room to the staff personnel.

Personal

James McComb has been appointed district sales manager for the **Ramapo Ajax Division** of the **American Brake Shoe Company** in the St. Louis area.

Mr. McComb joined the company as a sales representative in 1945. In his new position he will be located at the division sales office in E. St. Louis, Ill.

C. Miles Burpee, vice president, **Simmons-Boardman Publishing Corporation,** has resigned to become manager of the Service Bureau of the American Wood Preservers' Association, with headquarters at Chicago. His appointment will become effective about May 10. Mr. Burpee succeeds **P. R. Hicks** who has retired. Mr. Hicks has served as manager of the Service Bureau ever since it was organized 33 years ago.

J. A. Cuneo, general sales manager for **Fairbanks, Morse & Co.,** has been elected vice president in charge of sales. **Robert B. Craig,** assistant to the president, has been named a vice president of the company. **Mario A. Gasque,** assistant manager of **Fairbanks, Morse de Mexico, S.A.** and **Manufacturera Fair-**

banks, Morse S.A., has been appointed manager of the foreign subsidiary with offices at Mexico City and Tlalnepantla succeeding **Paul A. Suess** who has been transferred to Los Angeles as branch manager. **Alfred M. McLaren,** formerly manager at Los Angeles, has been transferred to St. Louis to assume the company's branch house operations in that area, succeeding **Cliff Schroeer** who died recently.

Charles H. Schminke has been appointed field sales manager for **Ramset Fasteners, Inc.,** a division of **Olin Industries, Inc.**

Mr. Schminke, who was formerly district sales manager of Lyons Metal Prod-

Charles H. Schminke

ucts brings 14 years of sales experience to Ramset, 6 of which were in an executive capacity. He attended the University of Illinois, Northwestern University and DePaul University for special studies.

Obituary

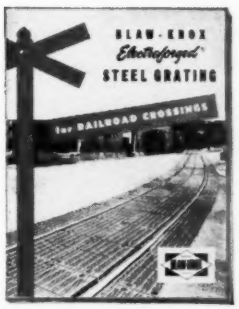
Harry A. Wolfe, division sales manager, railway department, of The Lehon Company, Chicago, died on March 25. Mr. Wolfe was born on May 15, 1897, and attended Valparaiso University. He entered railway service in 1916 as a clerk on the Milwaukee Road, resigning in 1918 to enter the army. On returning from the service in 1919 Mr. Wolfe again entered the employe of the Milwaukee. In 1926 he entered the service of the Lehon organization as a special representative, being subsequently advanced to supervisor of railway sales. In 1944 he left this company to become field representative of the Buda Company, subsequently being promoted to district manager with headquarters at Chicago. He returned to the service of The Lehon Company in 1948 as division sales manager, railway department. Mr. Wolfe was a past president and past secretary of the Bridge and Building Supply Men's Association (now the Bridge and Building Supply Association). He also served as a director of this association at the time of his death.

Harry C. Hickey, western sales manager of the Rail Joint Company, Inc., with headquarters at Chicago died on April 8.

Grating by BLAW-KNOX

• reduces track maintenance

• promotes public goodwill



Want more complete information? Just write for your copy of new Booklet No. 2448 . . . or send your dimensional sketches for a quotation.

GRATING APPLICATIONS: crossings • walkways • running boards • steps • tower platforms fan guards • shelving • floors • catwalks • stair treads • and many other uses for versatile steel grating

Modern steel crossings, because of low maintenance, save the difference in initial cost over ordinary wood gratings in about five years. And at the same time build up a lot of public good will.

CROSSINGS OF BLAW-KNOX ELECTROFORGED® STEEL GRATING

—are easily installed and maintained—takes only two men to remove sections for tamping tracks, cleaning ballast, renewing ties

—provide good drainage, permit quick evaporation of snow and water, are easily kept clean

—last as long as the rails

—promote public goodwill

Blaw-Knox Railway Equipment Representatives

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H. S. Russell — R. S. Russell
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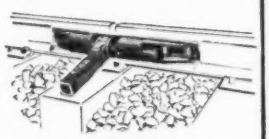

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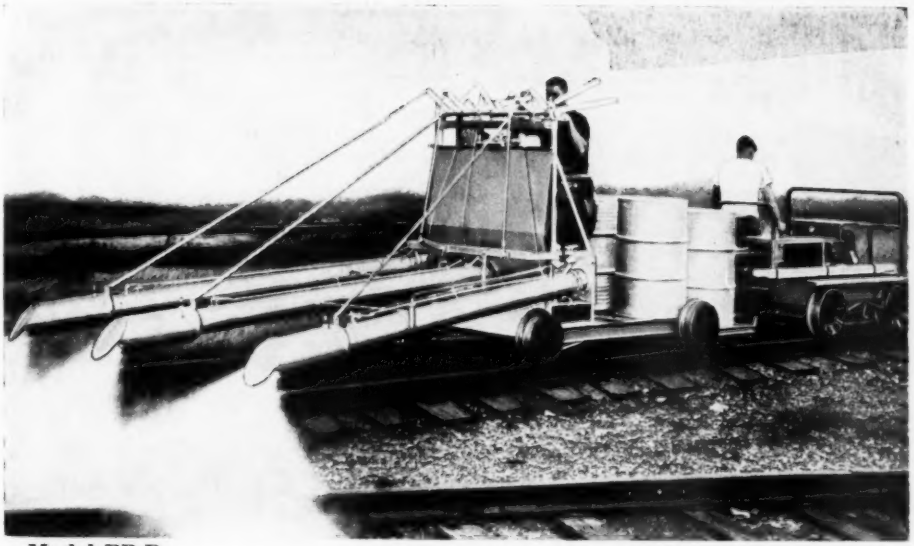

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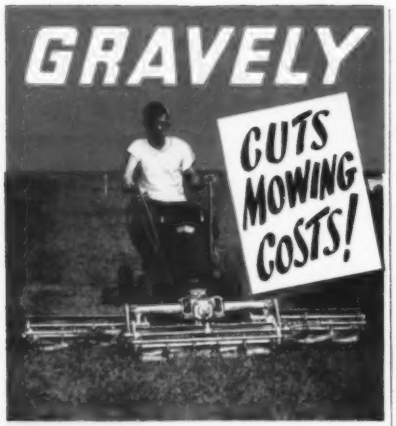

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Manufacturers' Literature

Following is a compilation of free literature, pamphlets and data sheets offered by manufacturers to the railroad industry. Circle the number (s) on the coupon below to receive the information desired; the requests will be sent direct by the manufacturers.

1. 35-TON CRAWLER CRANE. *American Hoist & Derrick Company.* 6-page catalog #700-G-24 describes, gives specifications, and illustrates with on-the-job photos the new American 750, the 1½ yard shovel, 35-ton crane (35-ton crane, 1½ yard rock shovel, 2 yard clamshell-dragline, 1½ yard back-hoe).

2. SHOULDER BALLAST CLEANER. *Railway Maintenance Corporation.* Bulletin describes, gives various uses, and presents specifications of the crawler-mounted McWilliams Super Mole—discusses mobility around roadside obstructions, over crossings and across tracks.

3. BACKFILLER. *The Cleveland Trencher Company.* Descriptive bulletin #S-118 completely describes with photos, dimensions and specifications the Cleveland Model 190 Backfiller for use on heavy construction projects.

4. CHIMNEY. *Van-Packer Corporation.* 4-page 2-color brochure illustrates with sectional diagrams and gives complete specifications and typical installations for the Van-Packer Packaged Masonry Chimney.

5. SIGNAL BONDS. *Ohio Brass Company.* 16-page illustrated booklet #1307-S "Time Tells" gives requirements of signal bonds including conductivity, resistance to corrosion and vibration, and impact strength, as well as a cost comparison on different installation methods.

6. ROTARY DRYER SCREEN. *Joy Manufacturing Company.* Flyer #F40 describes, illustrates and offers typical applications of the Joy Rotary Dryer Screener for sand and other free flowing non-combustible materials.

7. CHEMICAL WEED KILLER. *General Chemical Div. Allied Chemical & Dye Corporation.* 4-page 2-color booklet "Railroad Weed Control With General Chemical Rite-o-way Weed Killers" discusses the weed control materials and includes a useful spray chart for use by railroads when inquiring on costs and quantities.

8. EARTHMOVING EQUIPMENT. *Caterpiller Tractor Company.* 24-page, 4-color, cartoon-style maintenance guide for earthmoving equipment (Form #D411) takes a new county road commissioner through a visit to a typical earthmoving contractor; in 90 drawings goes from one specialist to another, tells how to care for the equipment.

9. ELECTRIC PLANTS. *D. W. Onan & Sons, Inc.* Folder #A-345 describes the complete line of Onan Standby Electric Plants, including both gas and gasoline driven models.

10. CHEMICAL WEED KILLER. *Grasselli Chemicals Dept. E. I. DuPont de Nemours & Co. Inc.* 12-page brochure A-6644 "Low Cost Weed & Grass Control With Du Pont Telvar W Weed Killer" gives complete information and shows with 4-color illustrations some of the uses and results obtained from "Telvar" W.

11. RAILWAY MAINTENANCE MACHINES. *Racine Tool & Machine Co.* Complete information offered on "Racine Railway Maintenance Machines" including the portable tie tamper, the portable rail drill and the portable rail saw, showing notable features and specifications of each. (*Please specify by machine name*).

12. FROG PLATES. *Bethlehem Steel Company.* Folder #390 gives complete details and specifications on Bethlehem Twin Hook Frog Plates.

13. TIE PADS. *Bird & Son, Inc.* Complete information offered (Dept. HTS-5) on Bird self-sealing tie pads, a waterproof dustproof seal on tie protecting area under tie plates and around spikes. (See advertisement in this issue).

14. MAP CABINETS. *Ross-Martin Company.* Catalog #352-B gives complete details, typical uses and specifications for Kraftbilt lifetime map cabinets, sectionalized, with disappearing doors.

15. CONTINUOUS RAIL. *Oxweld Railroad Service Company Div. Union Carbide & Carbon Corp.* Latest A.R.E.A. committee report on Continuous Rail offered free of charge by Oxweld.

16. TIE GRAPPLES. *Blaw-Knox Company.* Bulletin #2404 gives complete details and illustrates actual job applications of the railroad tie grapple.

17. AIR TOOLS. *Gardner-Denver Company.* Descriptive bulletins illustrate and give details on the Gardner-Denver line of air tools, including: compressors, pumps, rock drills, air motors, compressor outfits and trailer compressors. (*Please specify from ad in this issue*).

18. TIE PADS. *F. Burkhart Mfg. Co., Div. Textron Inc.* 4-page folder "The Problem . . . The Answer . . . The Result" gives data and typical installations of Burkhart Tie Pads. For sample or prices *please specify*.

Reader Service Department **MAY, 1954**
Railway Track and Structures
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